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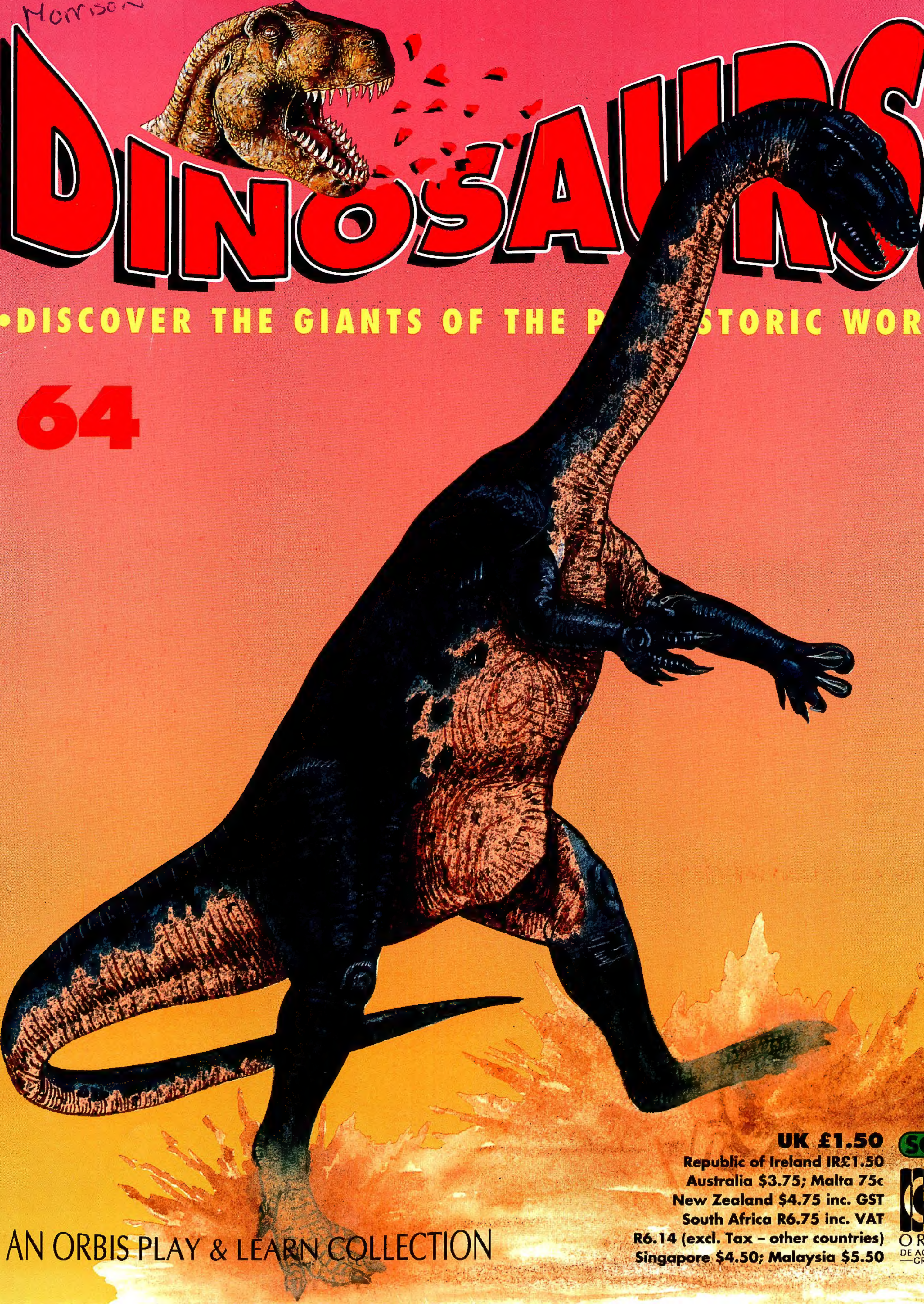

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EUPARKERIA

***Euparkeria* was probably the first animal to run on two legs.**

The small, agile flesh-eater, *Euparkeria,* usually walked on all four legs. But when it spotted a likely looking meal, in the shape of a tiny mammal-like reptile, it probably reared up on its hind legs and sprinted after its prey.

RULING REPTILES

Euparkeria was an important animal because it had features which were shared by both crocodiles and dinosaurs. It was an early member of a large group called the archosaurs (ark-o-saws) which ruled the Earth for millions of years. These animals were widespread during the Triassic Period.

TOOTHY REPTILES

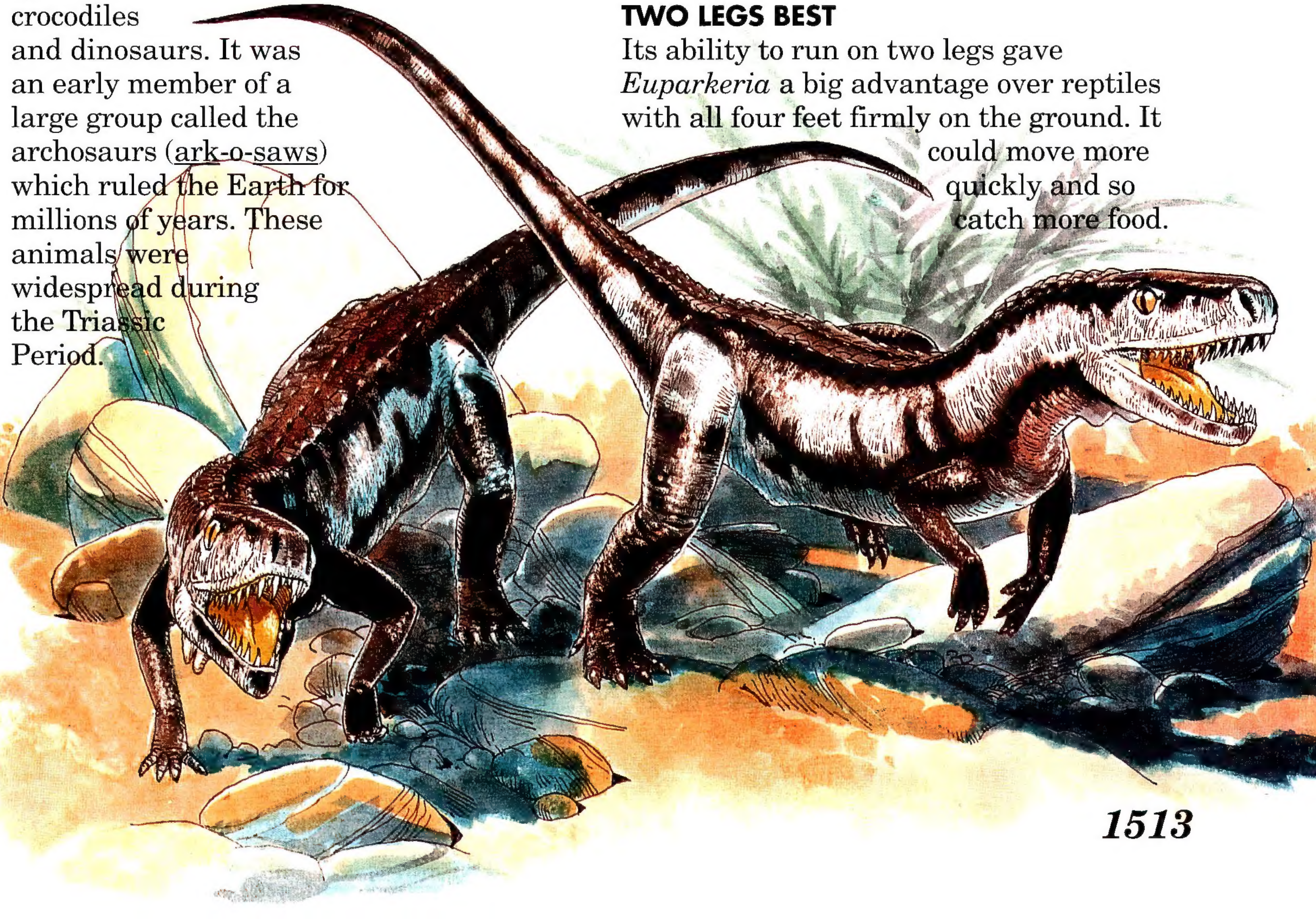
Euparkeria belonged to the thecodont archosaurs, a group of reptiles that had their teeth anchored in sockets.

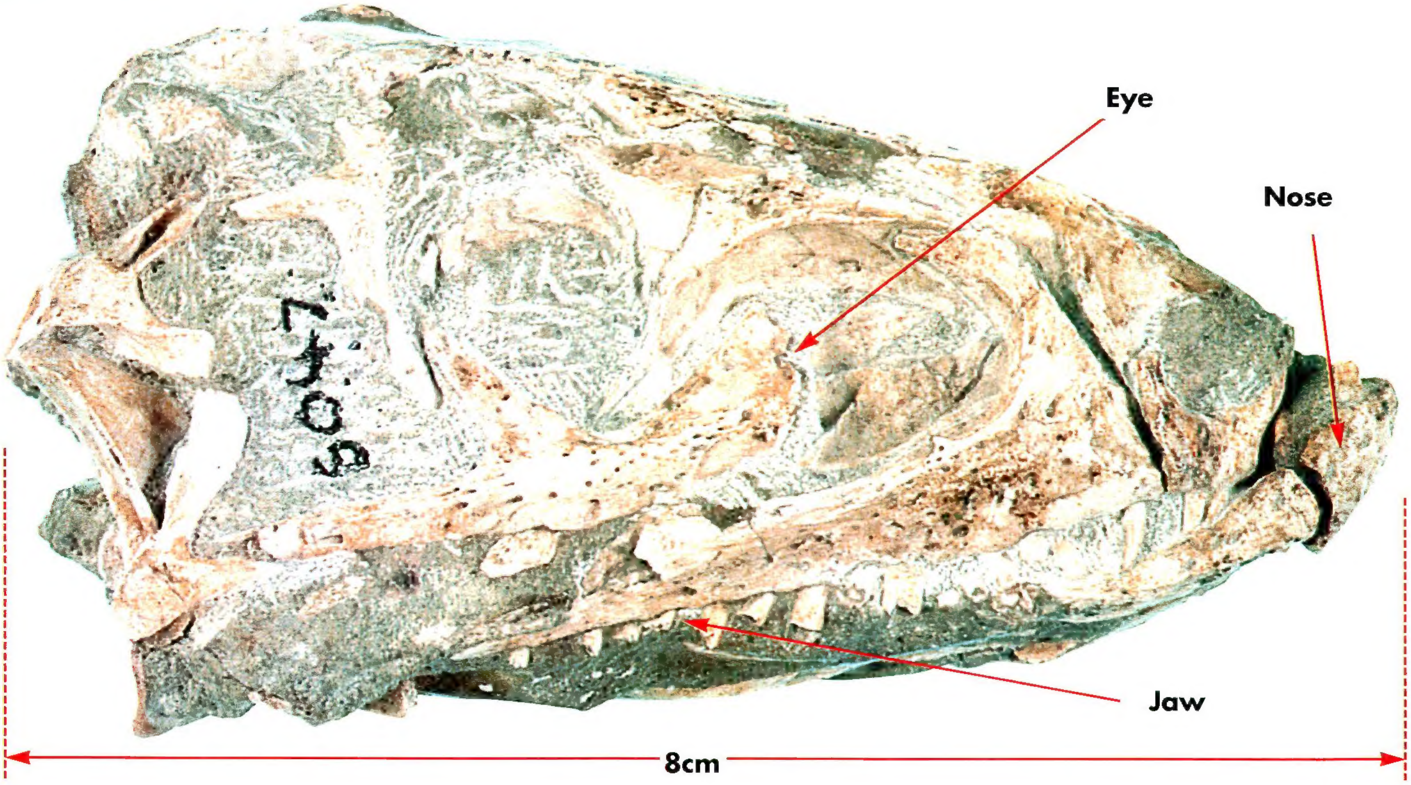
TAKEN BY SURPRISE

Euparkeria was about the size of a red fox. It skulked among the undergrowth in the warm, moist climate of Triassic South Africa. Hidden from view, it waited for the welcome rustle of small feet. As *Euparkeria* reared up for a better look, the startled victim took flight and the hunter leapt into action. *Euparkeria* could sprint off on its powerful legs to capture its prey.

TWO LEGS BEST

Its ability to run on two legs gave *Euparkeria* a big advantage over reptiles with all four feet firmly on the ground. It could move more quickly and so catch more food.





TAIL LIFT

Its strong hind limbs were curved and powerful for quick acceleration. As it ran, *Euparkeria* lifted its tail for better balance.

TEETH AND SKULL

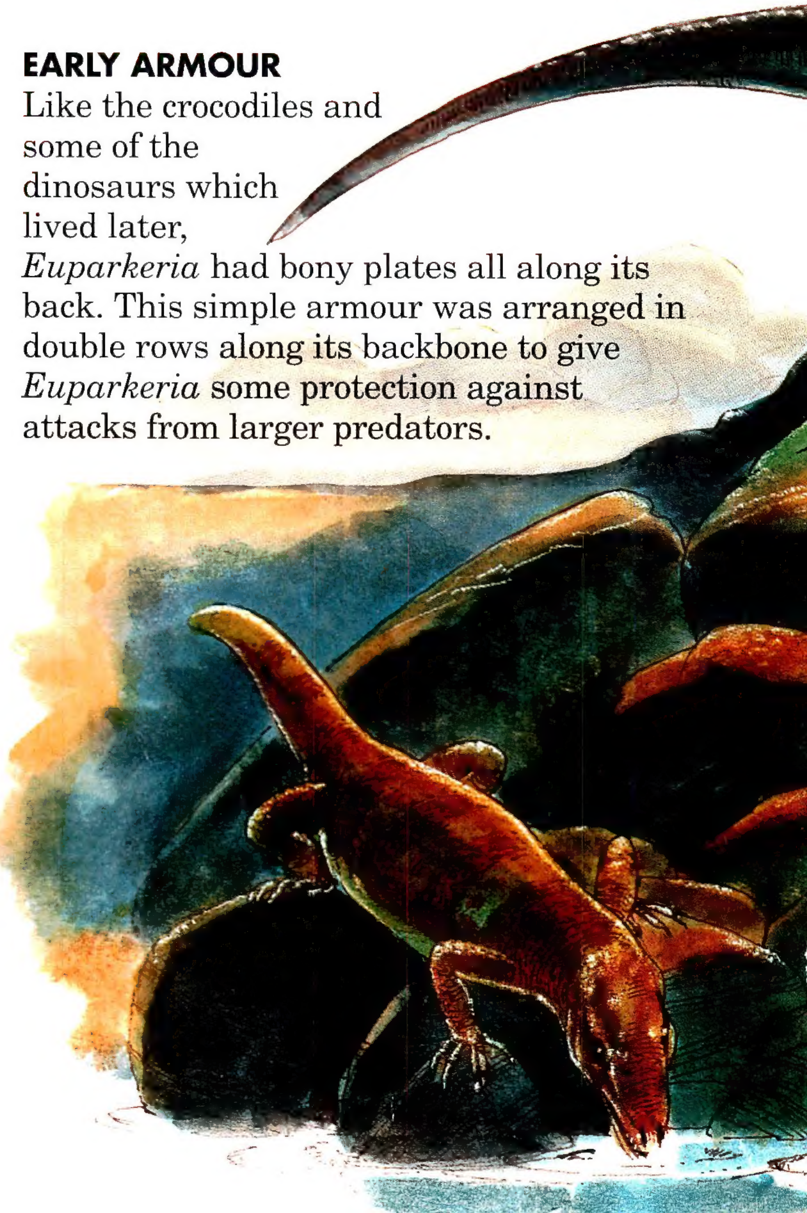
Euparkeria had the teeth of a hunting animal. Set deeply into its jaw, they could stand up to the struggles of its victims. And they were sharp and jagged, ideal for tearing through flesh. *Euparkeria* had two openings in its skull, one in front of its eyes and another in its jaw, which made its skull light and strong.

Is it true that archosaurs are still alive today?

The first archosaurs appeared in the Late Permian Period, over 250 million years ago. During the Late Triassic Period, two important lines evolved, the crocodylotarsi and ornithosuchia. These were the ancestors of the crocodiles and birds that survive today.

EARLY ARMOUR

Like the crocodiles and some of the dinosaurs which lived later, *Euparkeria* had bony plates all along its back. This simple armour was arranged in double rows along its backbone to give *Euparkeria* some protection against attacks from larger predators.



STRAIGHT UP

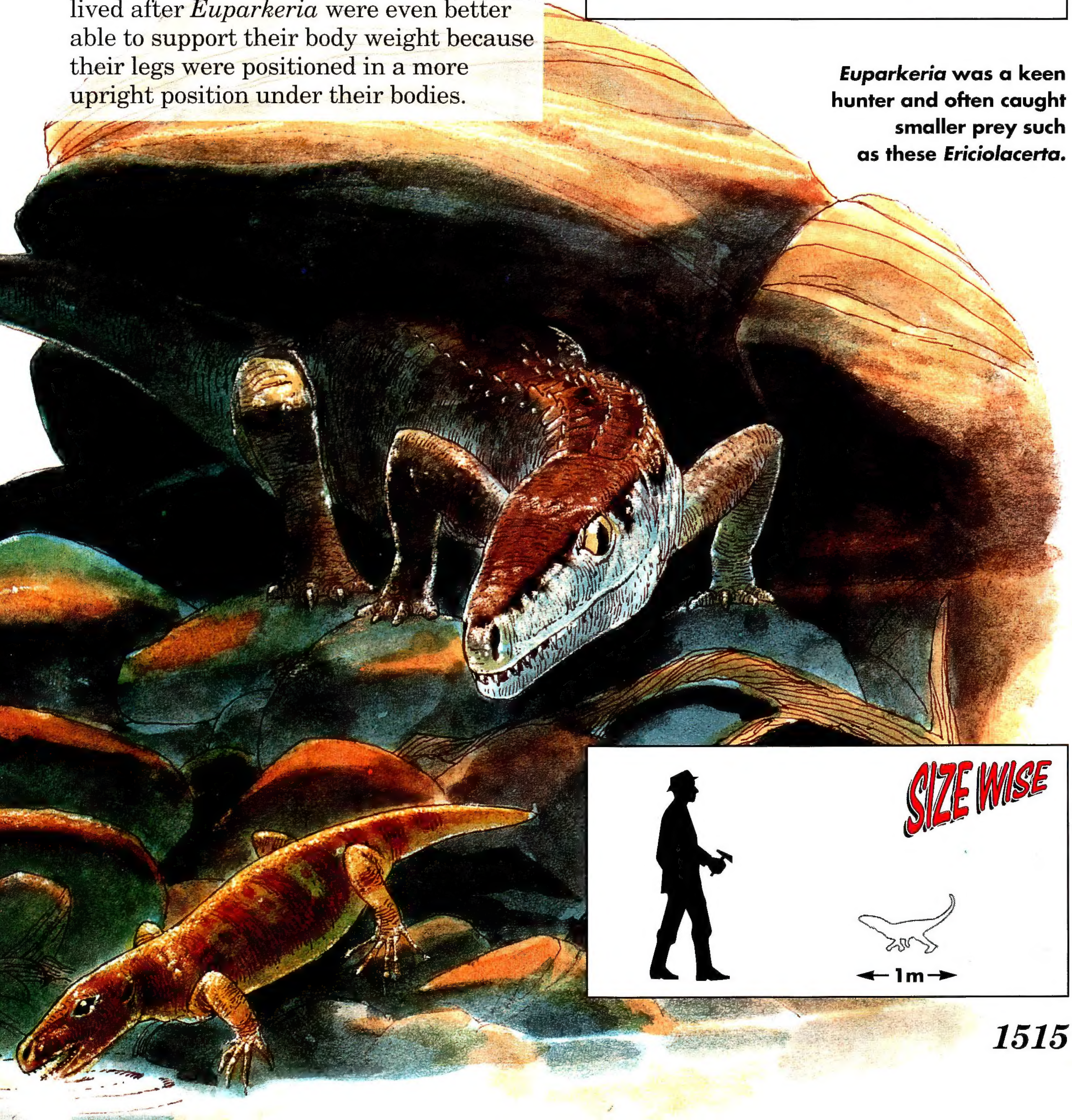
Before Early Triassic times, most reptiles moved with their elbows and knees sprawled outwards. As they walked along their bodies were close to the ground. *Euparkeria*'s legs were tucked partly beneath its body and were more efficient.

LEG ADVANTAGE

The dinosaurs, birds and mammals that lived after *Euparkeria* were even better able to support their body weight because their legs were positioned in a more upright position under their bodies.

MONSTER FACTS

- **NAME:** *Euparkeria* (yoo-par-kee-ree-a) means 'true Parker's'
- **GROUP:** reptile
- **SIZE:** up to 1m long
- **FOOD:** meat
- **LIVED:** about 240 million years ago in the Early Triassic Period in South Africa



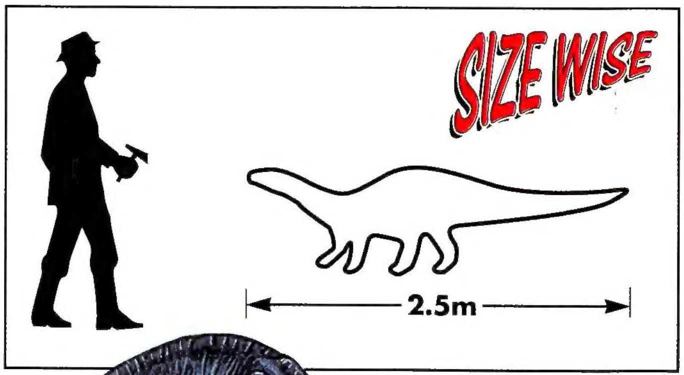
***Euparkeria* was a keen hunter and often caught smaller prey such as these *Ericiolacerta*.**

SIZE WISE

AMMOSAURUS

***Ammosaurus* was as long as a small car and knee-high to an adult human.**

Near the end of the last century, bridge builders in Connecticut, USA, came across the fossilized bones of a dinosaur in a quarry. The dinosaur was named *Ammosaurus*. Some time later, when the bridge was knocked down, even more fossils were uncovered.



LONG-BODIED

Like its relative *Anchisaurus*, *Ammosaurus* was a plant-eating prosauropod. It probably walked on four legs most of the time because its long neck and body made it difficult to balance on two legs. Whether it walked on two or four legs, *Ammosaurus* always kept its tail held off the ground.

HIGH AND LOW

Ammosaurus was able to reach low-growing plants and could also stretch up high to reach succulent shoots and leaves.

QUICK RETREAT

Ammosaurus looked for food on the muddy shores of the lakes in the Connecticut Valley. If attacked by a predator, it probably struck out fiercely with its five-fingered hands, tipped with sharp claws. Sometimes, of course, *Ammosaurus* decided to run away rather than fight!

MONSTER FACTS

- **NAME:** *Ammosaurus* (am-oh-saw-rus) means 'sand reptile'
- **GROUP:** dinosaur
- **SIZE:** 2.5m long
- **FOOD:** plants
- **LIVED:** about 205 million years ago in the Early Jurassic Period in Arizona and Connecticut, USA

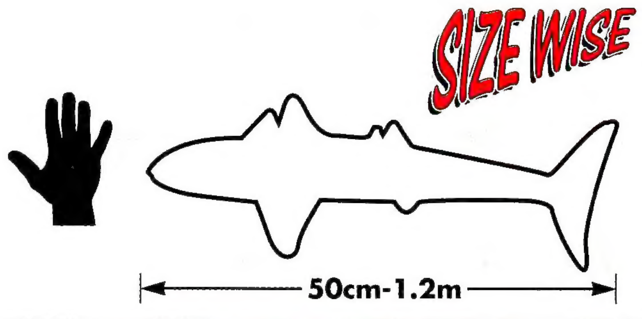
CLADOSELACHE

***Cladoselache* was an early shark, shaped like a torpedo.**

Big-eyed *Cladoselache* swam in the open seas of the Devonian Period alongside other fierce predators such as the monstrous *Dunkleosteus*. It moved its streamlined body swiftly through the water as it pursued its prey.

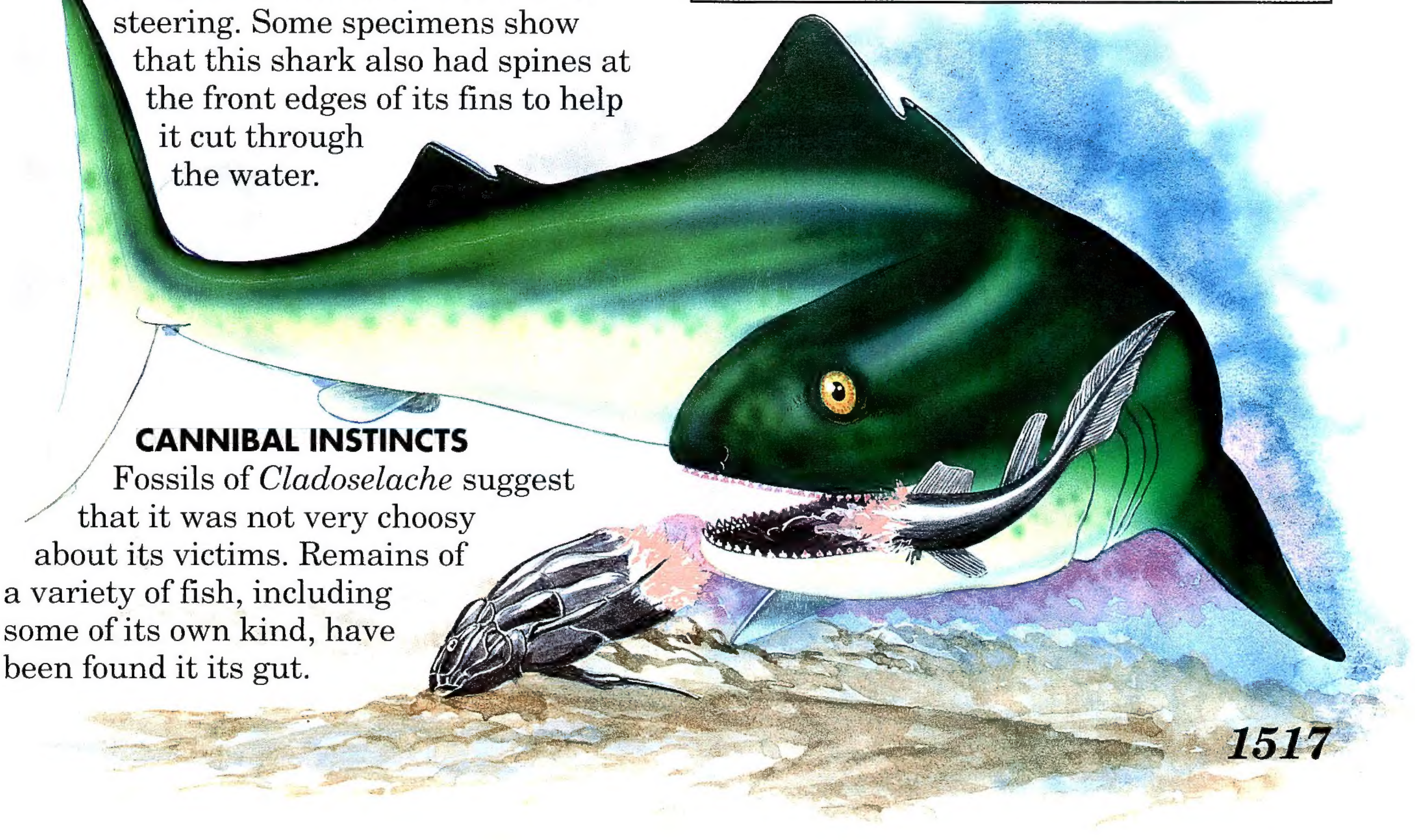
MONSTER FACTS

- **NAME:** *Cladoselache* (klad-oh-sel-la-kee) means 'stem shark'
- **GROUP:** fish
- **SIZE:** 50cm-1.2m long
- **FOOD:** other fish
- **LIVED:** about 370 million years ago in the Late Devonian Period in Europe and North America



SNUB-NOSED AND SPINY

Unlike the shark of today, *Cladoselache* had a rounded snout and its jaws were at the front rather than underneath. But as with today's sharks, when old teeth dropped out, new ones moved up to replace them. *Cladoselache*'s fins spread out from a broad base and tiny horizontal fins near its tail acted like rudders for steering. Some specimens show that this shark also had spines at the front edges of its fins to help it cut through the water.



CANNIBAL INSTINCTS

Fossils of *Cladoselache* suggest that it was not very choosy about its victims. Remains of a variety of fish, including some of its own kind, have been found it its gut.

Changes in the sea

The Ordovician Period lasted from 505 to 438 million years ago. During this time there was no life on land. But in the seas, all sorts of exciting life was developing.

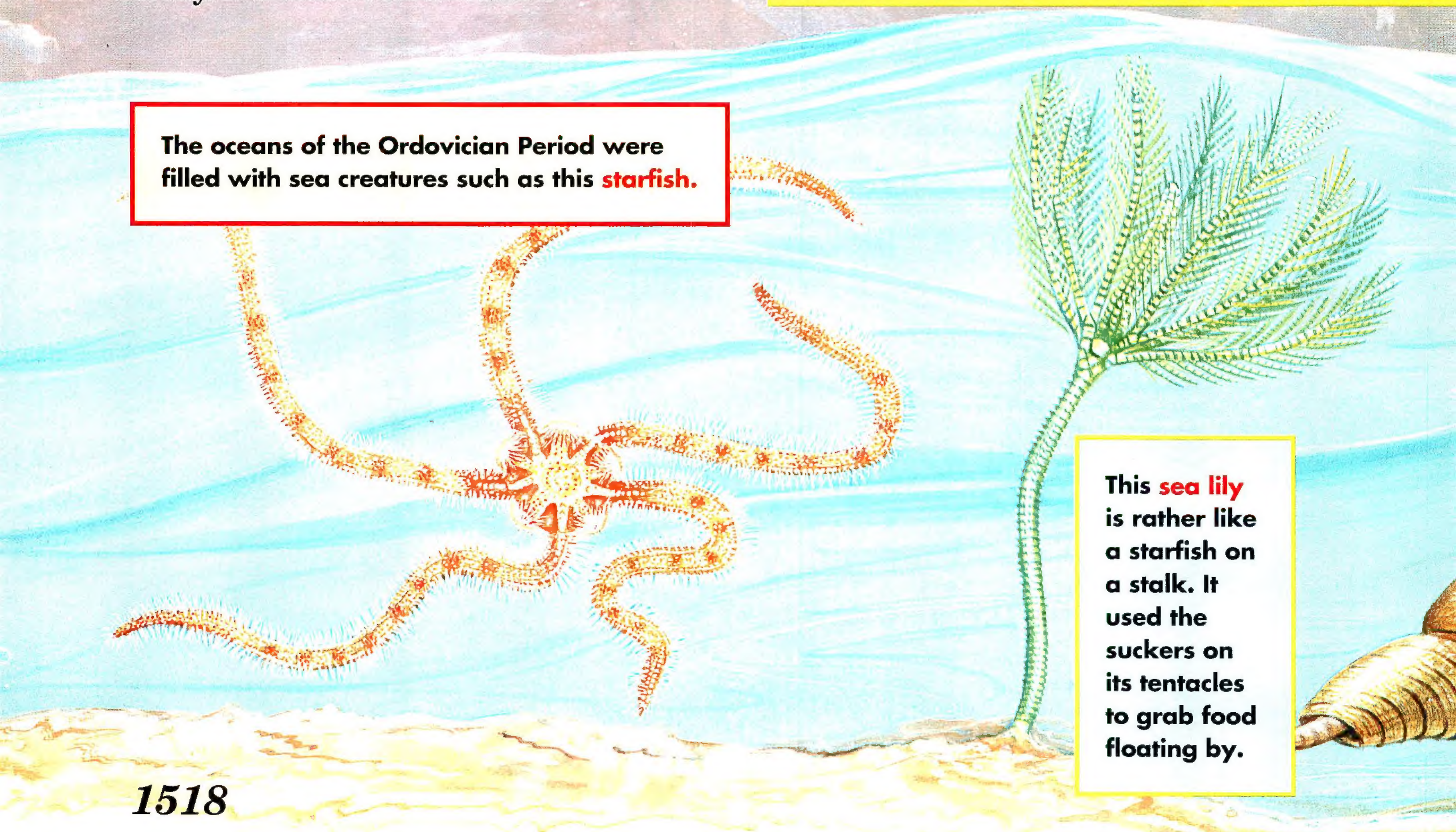
The animals that were important in the Cambrian Period continued to develop in the Ordovician. The trilobites and the shellfishes were especially successful.

SUCCESSFUL SHELLFISH

Nautiloids appeared in the Ordovician Period. They looked like squids wrapped in horn-shaped or coiled shells. Nautiloids were successful and still exist today. A modern relative is the *Nautilus*.

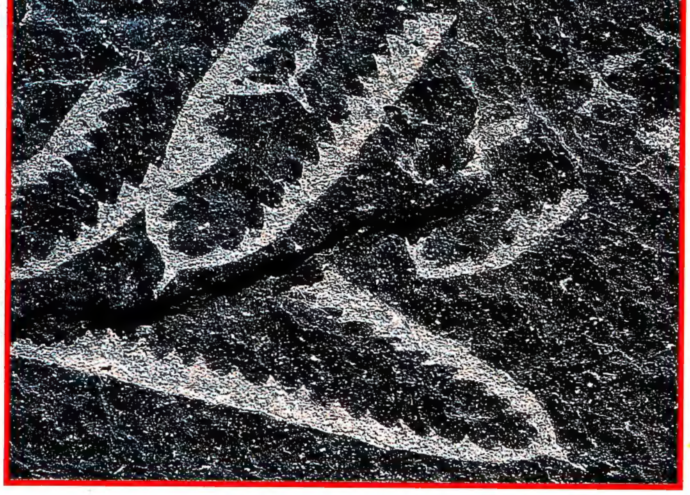
LIKE STARFISHES AND SEA LILIES

Calcichordate (kal-see-kor-date) is another fascinating fossil. It was related to the starfishes and sea lilies. In fact it looked like a sea lily that had fallen over.



The oceans of the Ordovician Period were filled with sea creatures such as this starfish.

This sea lily is rather like a starfish on a stalk. It used the suckers on its tentacles to grab food floating by.



These fossils of 'tuning fork' graptolites help scientists to date rocks accurately.

OUR ANCESTORS?

Some scientists think that calcichordates developed into the first animals with backbones. (We are animals with backbones.) Calcichordates had a body with a small mouth and tentacles at one end, and a tail at the other. If we think of the tail as a backbone, these little creatures were very like primitive fishes.

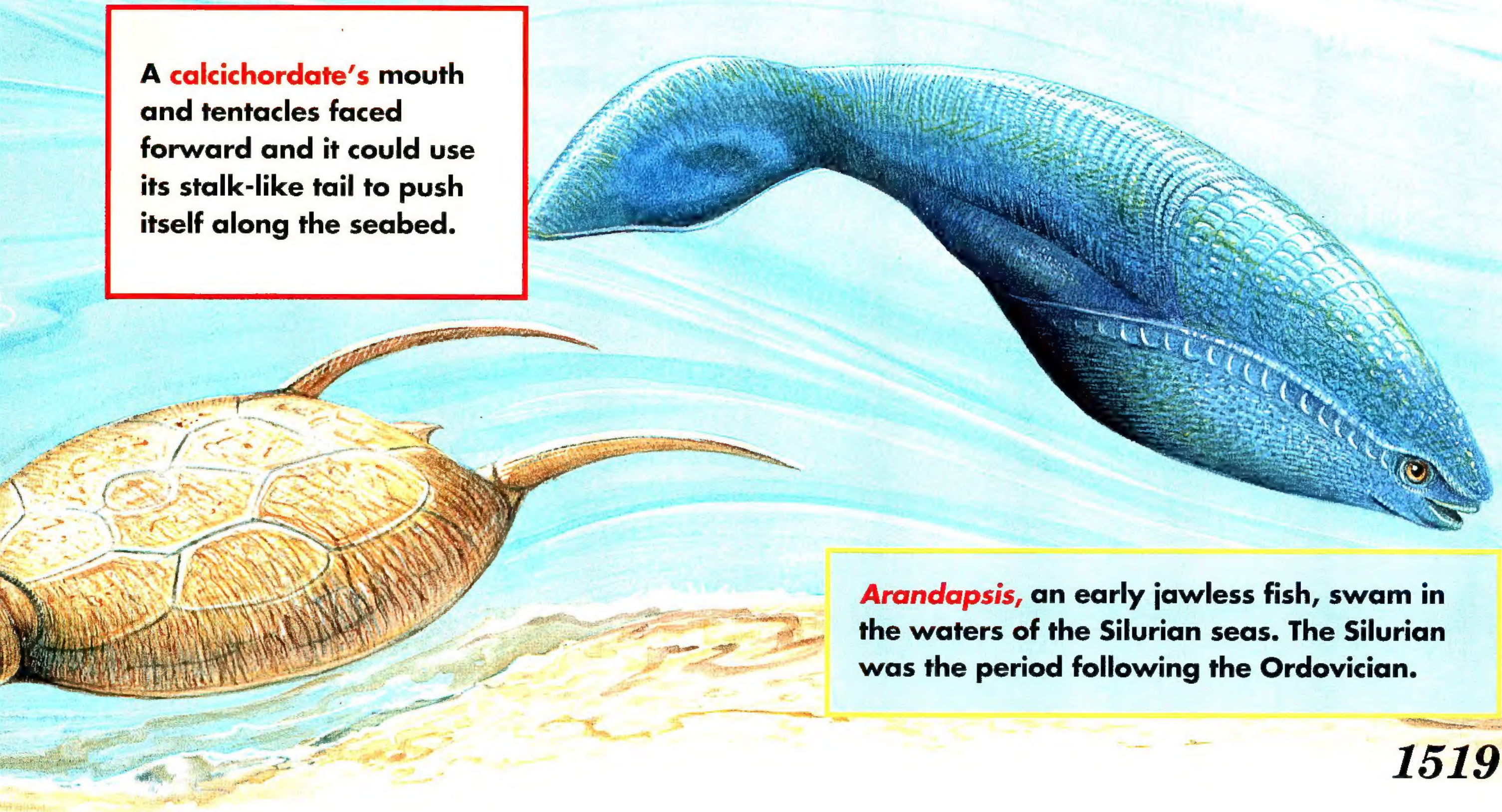
The background picture shows how the shoreline would have looked in Ordovician times.

OLD ROCKS OF WALES

The most famous Ordovician rocks are found in Wales. These rocks are shales and volcanic lavas. In Ordovician times, the continent of North America was moving towards northern Europe, pushing up the mud from the ocean floor to form black shale rocks above the water. The volcanic rocks were also created by the movements of the continents. The black shale contains fossils called graptolites. These graptolites were formed when tiny sea creatures died and sank to the ocean floor. Graptolites are used to date Ordovician rocks.

Is it true that the Ordovician and Silurian Periods are named after tribes?

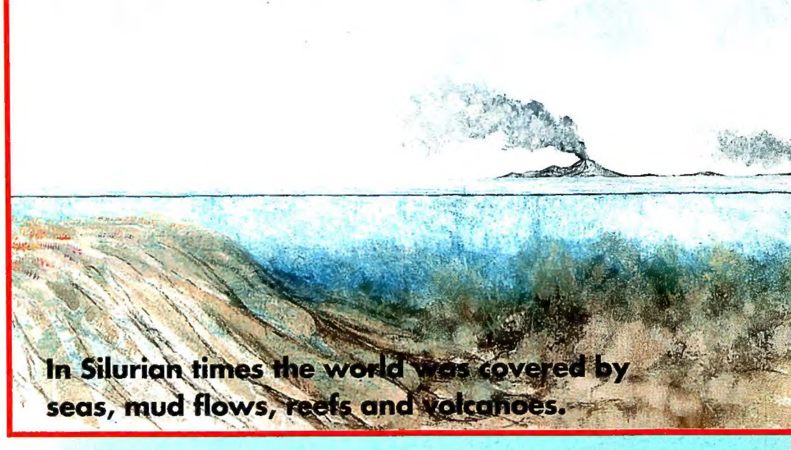
Yes. They are named after tribes that once lived in Wales – the Ordovices and the Silures. The rocks that tell the story of these periods were first found and studied in Wales. Of course, the tribes lived millions of years after the Ordovician and Silurian Periods named in their honour.



A calcichordate's mouth and tentacles faced forward and it could use its stalk-like tail to push itself along the seabed.

***Arandapsis*, an early jawless fish, swam in the waters of the Silurian seas. The Silurian was the period following the Ordovician.**

First life on land



In Silurian times the world was covered by seas, mud flows, reefs and volcanoes.

The Ordovician Period ended in a mass extinction, and the Silurian Period, which lasted from 438 to 408 million years ago, began.

SILURIAN CLUES

Once again, the rocks in Wales were studied and these gave scientists clues to what happened during the Silurian Period. We know that at this time the continents of North America and Europe moved closer towards one another. The ocean bed continued to buckle and fold.

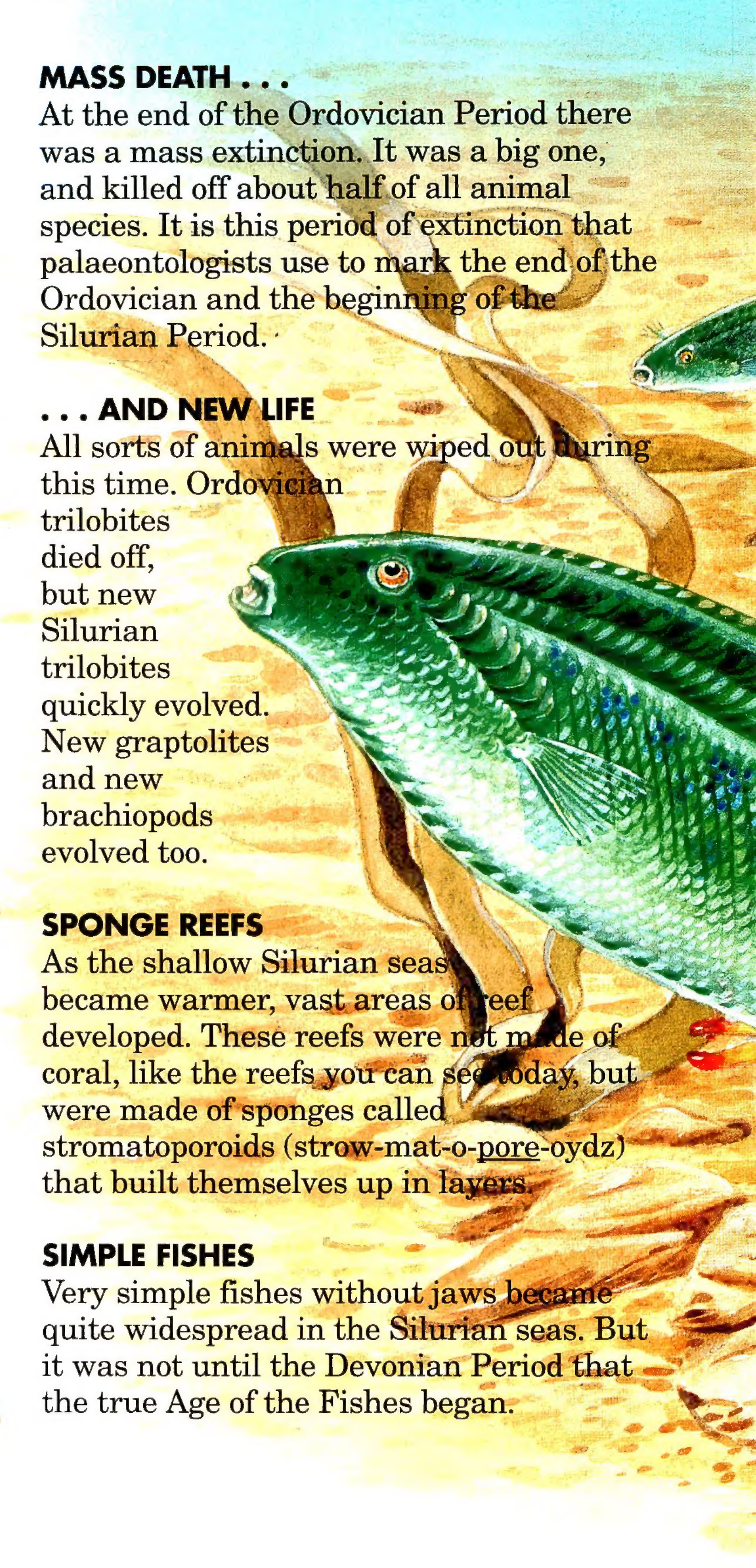
CHANGING SEAS

Large areas of shallow seas formed. At the beginning of the Period the sea level rose. This flooded the lands near the coast and made shallow seas over them. Scientists think an Ice Age occurred about half way through the Silurian Period.

IT'S A FACT

GREAT LAKES REEF

In the Silurian Period, a huge circular reef existed in the northern USA. You can still see the circular rock structure it formed in the curving shorelines of the five Great Lakes.



MASS DEATH . . .

At the end of the Ordovician Period there was a mass extinction. It was a big one, and killed off about half of all animal species. It is this period of extinction that palaeontologists use to mark the end of the Ordovician and the beginning of the Silurian Period.

. . . AND NEW LIFE

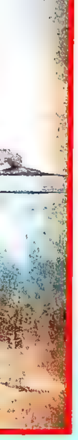
All sorts of animals were wiped out during this time. Ordovician trilobites died off, but new Silurian trilobites quickly evolved. New graptolites and new brachiopods evolved too.

SPONGE REEFS

As the shallow Silurian seas became warmer, vast areas of reef developed. These reefs were not made of coral, like the reefs you can see today, but were made of sponges called stromatoporoids (strow-mat-o-pore-oydz) that built themselves up in layers.

SIMPLE FISHES

Very simple fishes without jaws became quite widespread in the Silurian seas. But it was not until the Devonian Period that the true Age of the Fishes began.

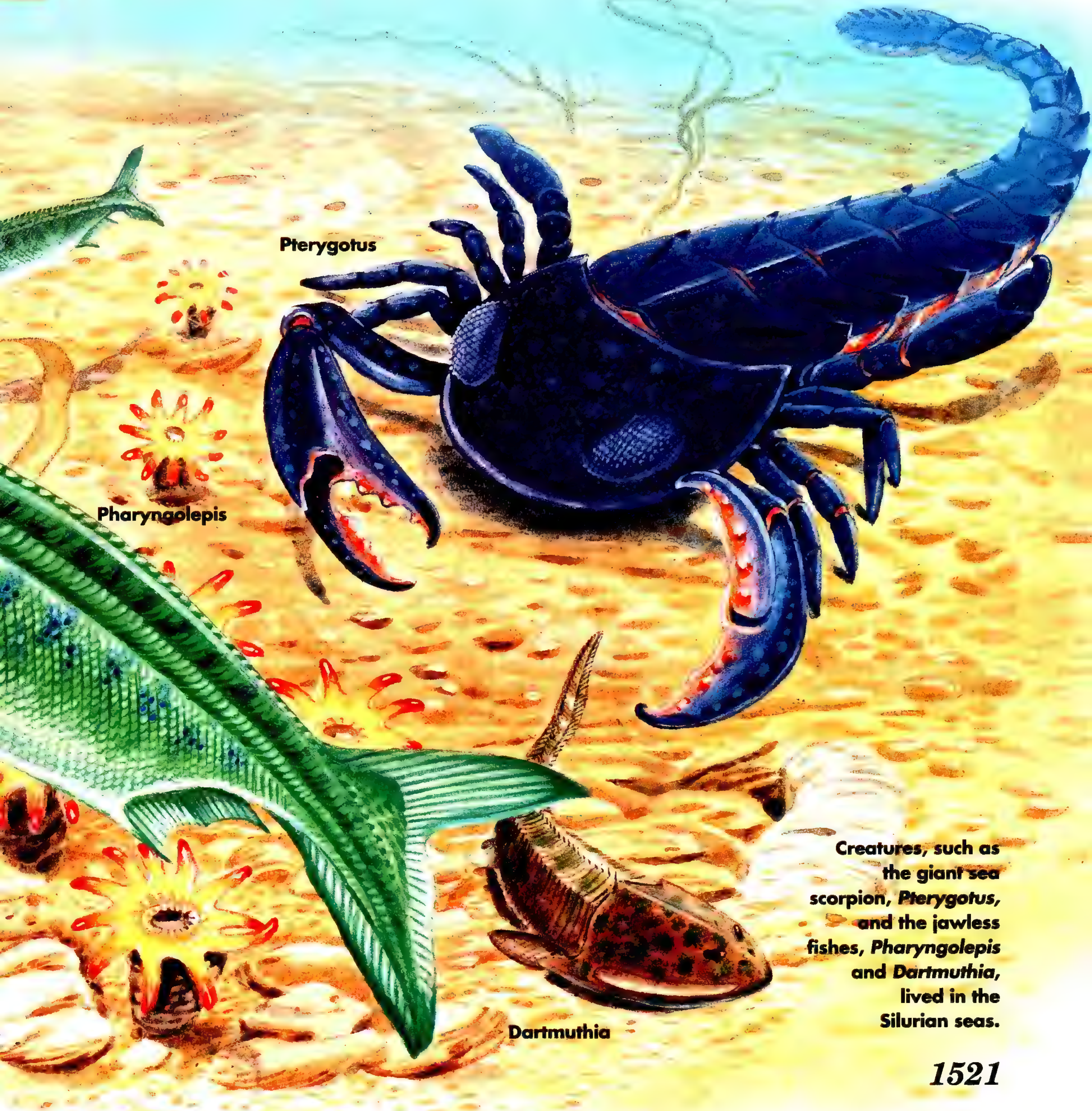


NEW LANDS TO CONQUER

So now we've had a glimpse of life in the Silurian seas, let's see what's happening on land. Here a greenish tinge seems to be collecting at the shoreline and moving up towards the barren lands.

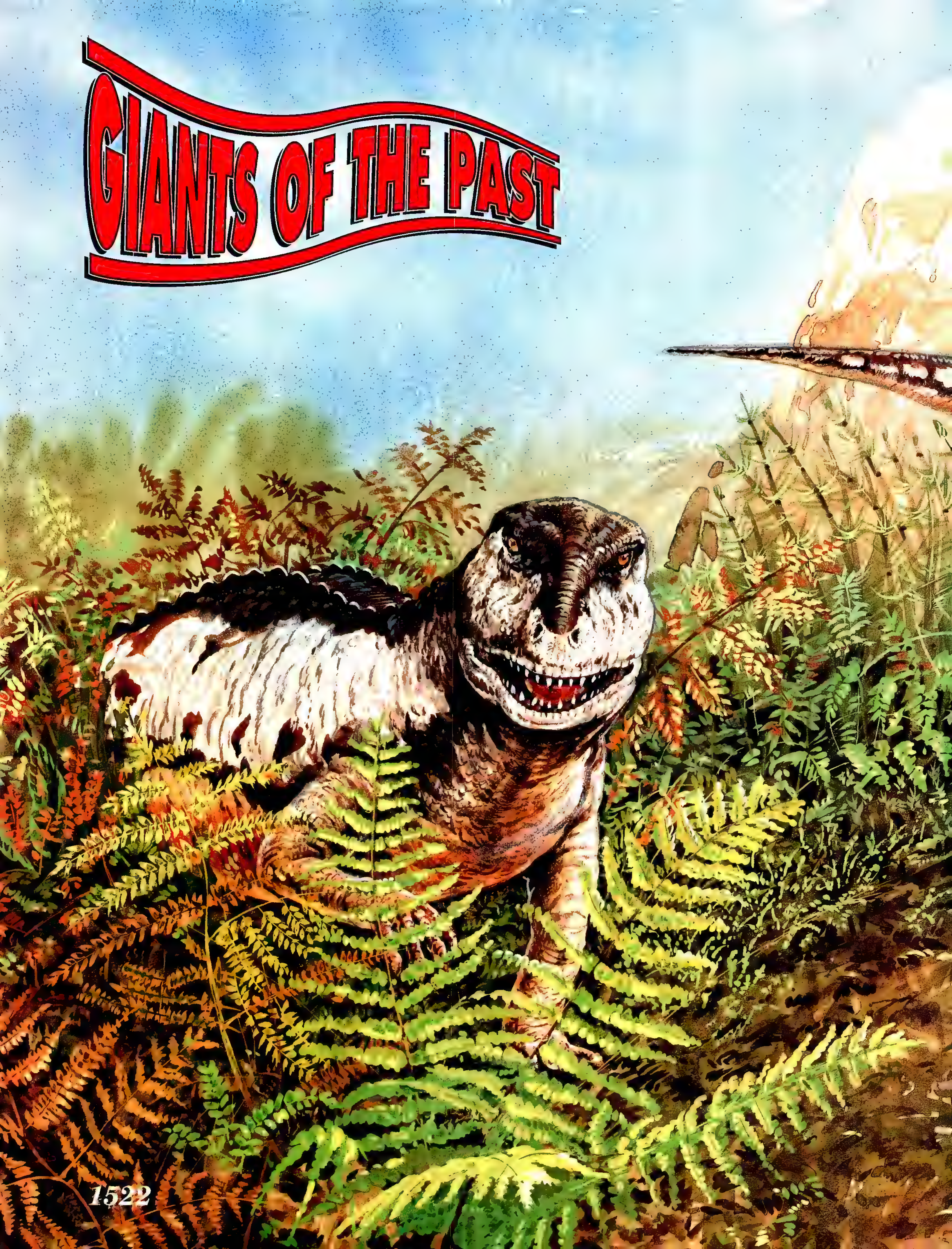
THE FIRST PLANTS

Plants were the first living things on land, and *Cooksonia* was probably the first land plant. *Cooksonia* had a network of tubes which carried water around it. This meant it could live away from the water's edge.



Creatures, such as the giant sea scorpion, *Pterygotus*, and the jawless fishes, *Pharyngolepis* and *Dartmuthia*, lived in the Silurian seas.

GIANTS OF THE PAST



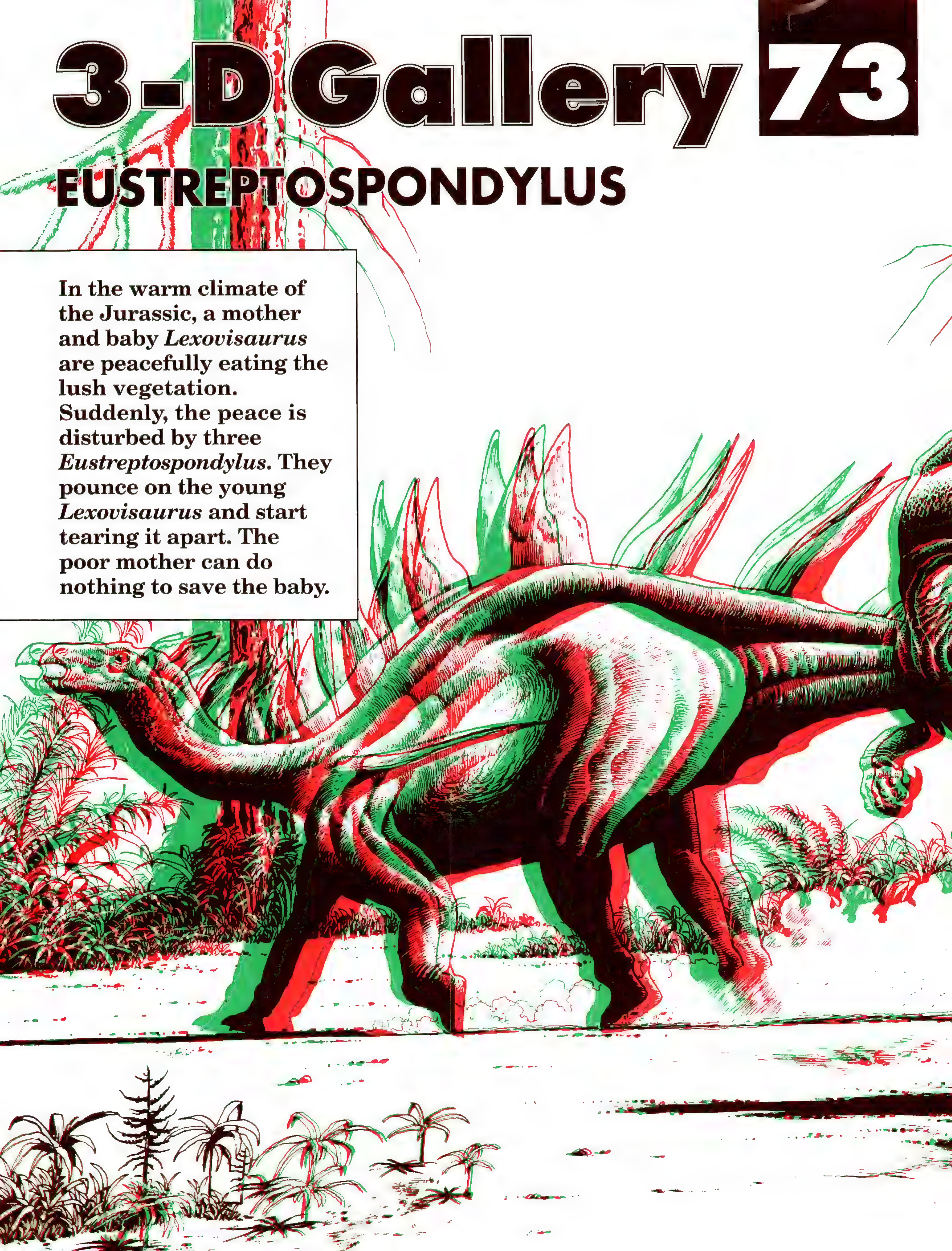
EUPARKERIA

Lying in wait among the ferns on a warm day in Early Triassic South Africa, two *Euparkeria* hear a rustling noise nearby. Turning swiftly, one spots a fleeing *Ericiolacerta*. The little reptile stands no chance as *Euparkeria* gathers speed, sprinting along on its powerful hind legs.

3-D Gallery 73

EUSTREPTOSPONDYLUS

In the warm climate of the Jurassic, a mother and baby *Lexovisaurus* are peacefully eating the lush vegetation. Suddenly, the peace is disturbed by three *Eustreptospondylus*. They pounce on the young *Lexovisaurus* and start tearing it apart. The poor mother can do nothing to save the baby.

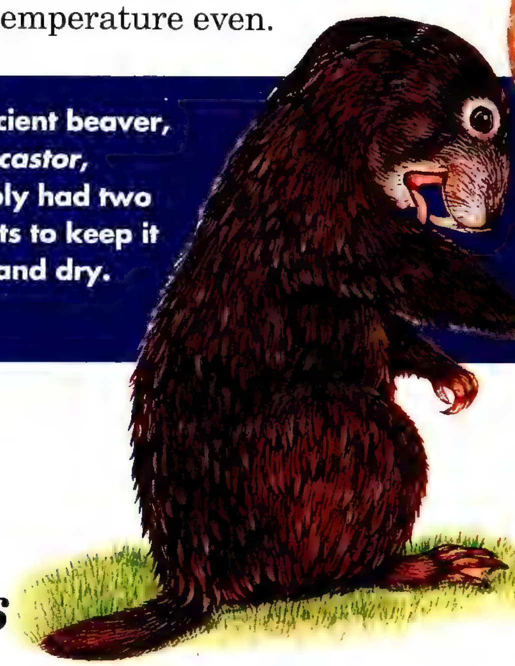


Fabulous fur

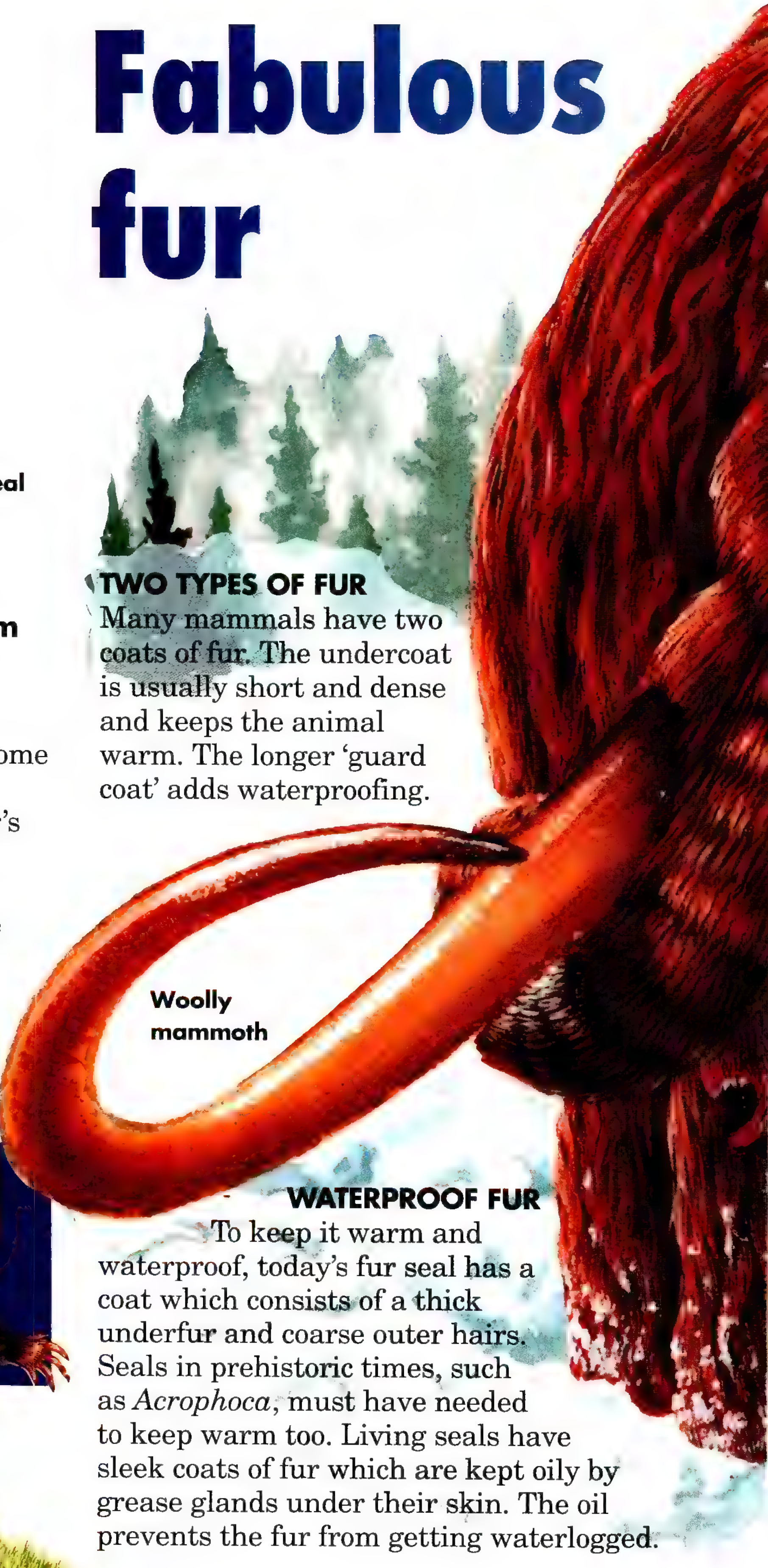
Australian fur seal

Thick or thin, soft or whiskery, body hair makes mammals different from other creatures.

All mammals have hair of some kind, even whales. The amount varies from a bear's thick fur coat to the fine hairs on a human's arm. Fur is not just for show. Since prehistoric times mammals have relied on fur and hair to protect them from heat and cold. In icy weather or baking sun, air trapped between the hairs of an animal's coat keeps its body temperature even.



The ancient beaver, *Palaeocastor*, probably had two fur coats to keep it warm and dry.



Woolly mammoth

TWO TYPES OF FUR

Many mammals have two coats of fur. The undercoat is usually short and dense and keeps the animal warm. The longer 'guard coat' adds waterproofing.

WATERPROOF FUR

To keep it warm and waterproof, today's fur seal has a coat which consists of a thick underfur and coarse outer hairs. Seals in prehistoric times, such as *Acrophoca*, must have needed to keep warm too. Living seals have sleek coats of fur which are kept oily by grease glands under their skin. The oil prevents the fur from getting waterlogged.

Morganucodon

THE BIG FREEZE

Because hair does not usually fossilize we are not sure exactly what prehistoric animals' fur looked like. However, some hair has been found with the bones of mammoths. It is thick and shaggy, with long hairs known as 'guard hairs'.

CHANGING COLOUR

New research shows that the woolly mammoth's fur has gone red over millions of years. It was probably dark brown when the mammoth was actually wearing it!

HAIRY HORN

The horn of the woolly rhinoceros was not really a horn at all. It was made of tough hair matted together into a horn-shaped mass.

Fur has to be kept clean to do a good job of keeping animals warm.

THE CAT'S WHISKERS

Many mammals today have whiskers to help them feel objects or sense movements. Ancient mammals, such as *Morganucodon*, also had whiskers, as holes in their nose bones show.

Trapped in tar!

The tar pits of Rancho La Brea in Southern California held an incredible secret for many thousands of years.

Around Los Angeles in Southern California, between the Pacific Ocean and the mountains behind the coast, is a narrow strip of land where oil is trapped in the rocks. The oil has been there for many thousands of years and is still there today.

STICKY PUDDLES

In some places the oil is not trapped below the ground very securely. It seeps up to the surface through cracks and along faults in the rocks. When this happens, the oil spreads out on the ground as a long, black puddle. Under the warm Californian sun some of the oil evaporates away to leave behind a sticky pond of thick tar.

TRAPPED!

These sticky puddles occurred in the past, too, when prehistoric beasts roamed freely across what is now the city and suburbs of Los Angeles. Rain showers left puddles of water on top of the tar layers. Animals, looking for a drink, wandered into the shallow water and their feet sank into the tar. Bellowing in anger, they discovered they couldn't move.

BITER BIT!

The noise attracted the meat-eating beasts, always on the look-out for animals in distress. The meat-eaters then became stuck as well. Scavenging birds flew in for a feast, but were unable to lift off because their feathers were clogged with tar.

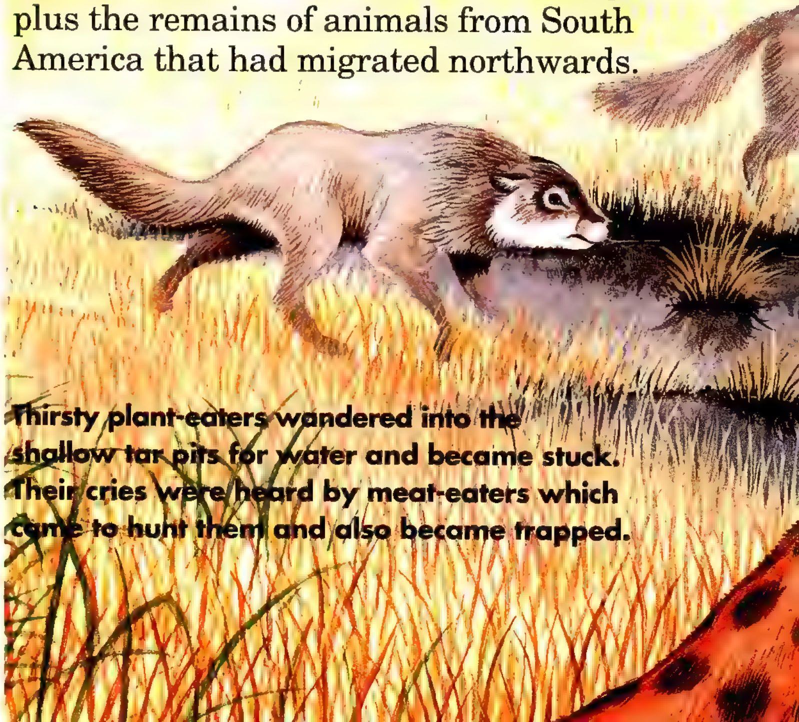
WHAT IS IN THE PIT?

How do we know this happened? Because at Rancho La Brea near Los Angeles a tar pit full of prehistoric beasts has been discovered. Found in the tar were the bones of many animals known to live in North America around 35,000 years ago, plus the remains of animals from South America that had migrated northwards.

IT'S A FACT

HORSING AROUND

The remains of horses have been found at Rancho La Brea. Horses first evolved in North America, but became extinct there over 15,000 years ago, so for thousands of years there were no horses in North America. Then, in the sixteenth century, they were brought back by European settlers to where they'd first evolved.



Thirsty plant-eaters wandered into the shallow tar pits for water and became stuck. Their cries were heard by meat-eaters which came to hunt them and also became trapped.

BIG ICE-AGE BEASTS

The big animals that became trapped included the giant sloth *Glossotherium*, the American mastodon, the imperial mammoth and other, now extinct, types of camel, bison and horse.

GREEDY MEAT-EATERS

The meat-eaters that were attracted by the squirming victims included the great sabre-toothed cat, *Smilodon*, and the extinct dire wolf, *Aenocyon*. There were also meat-eaters we know today, such as coyotes and lynx, and a type of lion, but these skeletons are less common. Perhaps these more intelligent hunters were careful and avoided becoming stuck. The scavenging birds included a vulture, *Teratornis*, as well as hawks and eagles.

STICKY BONES

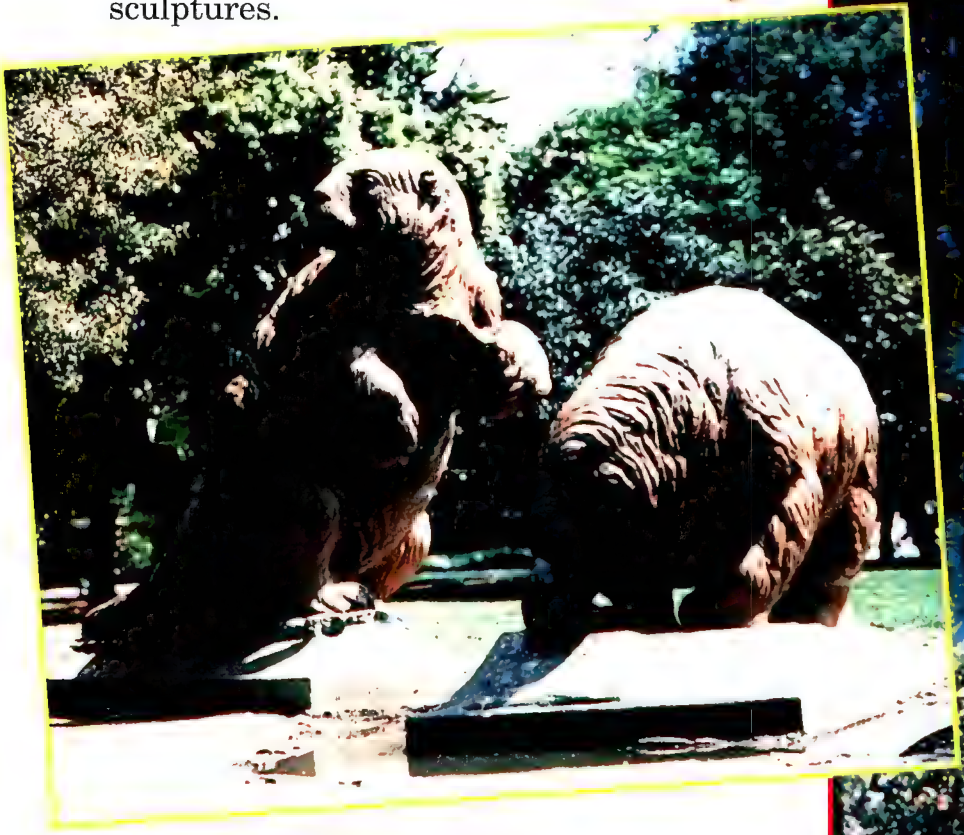
Tar helps to preserve things very well. So the bones of these unfortunate animals have survived tens of thousands of years and have not decayed away. Many of these bones lie there to this day, waiting for the palaeontologists to excavate them.

CITY SITE

Now, let us jump forward 35,000 years to the present day. The oil is still rising up through the ground and the tar pits are still there, although they are not as active as they once were. The landscape of yellow grasses with pine and cypress trees, backed by the purple haze of the distant hills, has changed, however. Now the pits lie in the centre of Los Angeles.

ANCIENT AND MODERN

Wilshire Boulevard hums and bustles close by, tower blocks cast their shadows across the tar and the Hollywood sign looks down from the hills. The only mammoths and ground sloths that exist at Rancho La Brea now are skeletons and life-sized sculptures.



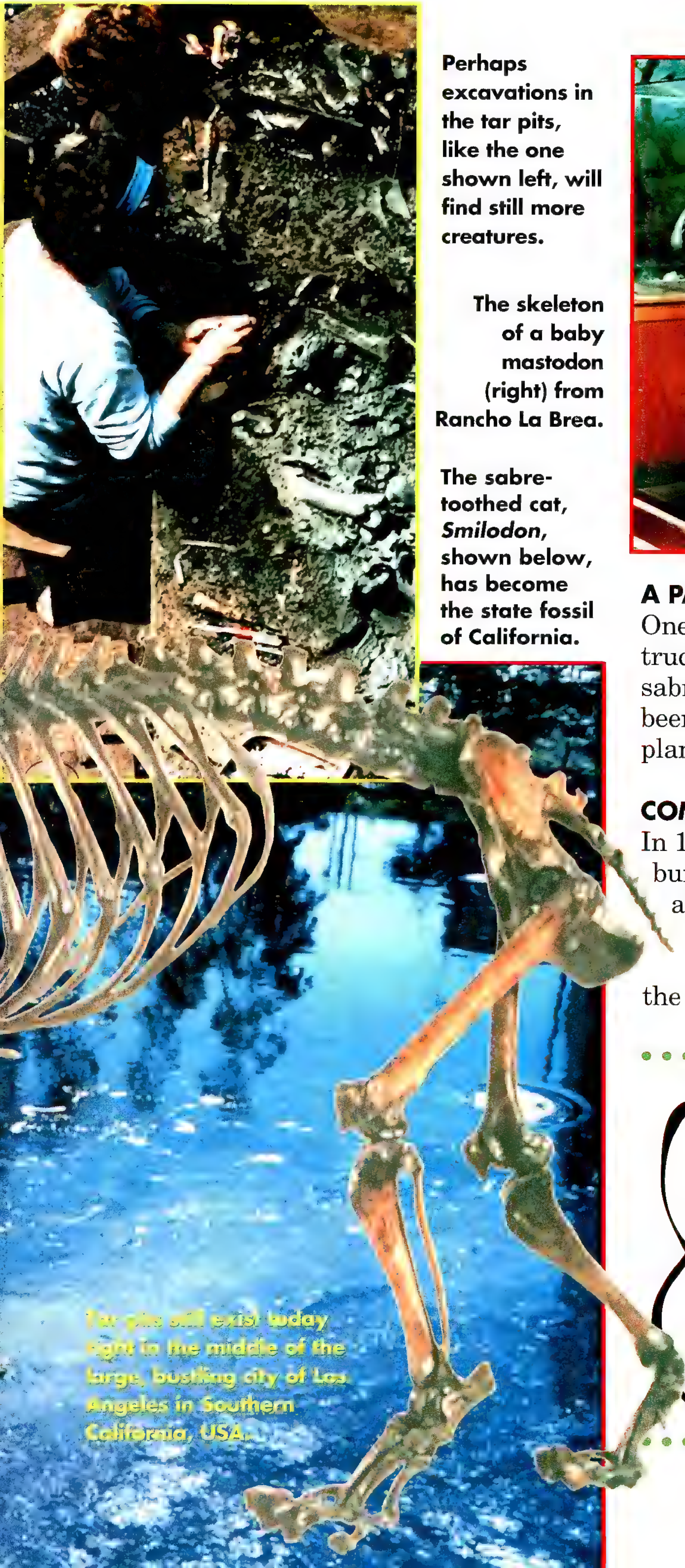
These sculptures of ground sloths are based on skeletons found in the tar pits.

RANCHO LA BREA

Rancho La Brea (*brea* is Spanish for tar) was discovered by the Spanish explorer Gaspar de Portolá in 1769. The first European settlers in California used to take tar from the pits to seal the roofs of their houses and make them waterproof.

ANIMAL SITE

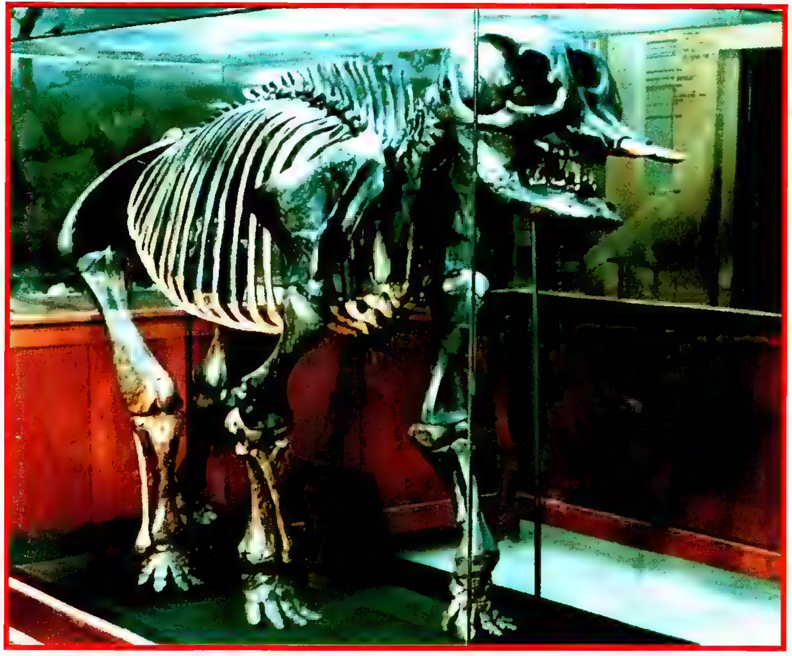
Towards the end of the last century the Hancock family, on whose estate the tar pits lie, recognised that the bones in the tar were those of extinct animals. The site was given to Los Angeles county in 1913 and excavations have continued there ever since.



Perhaps excavations in the tar pits, like the one shown left, will find still more creatures.

The sabre-toothed cat, *Smilodon*, shown below, has become the state fossil of California.

Tar pits still exist today right in the middle of the large, bustling city of Los Angeles in Southern California, USA.



The skeleton of a baby mastodon (right) from Rancho La Brea.

A PALAEONTOLOGIST'S DREAM

One block of tar, about the size of a small truck, had 50 dire wolf skulls and 30 sabre-toothed cat skulls in it. There have been over 200 prehistoric animals and plants identified at the site so far.

COME AND SEE

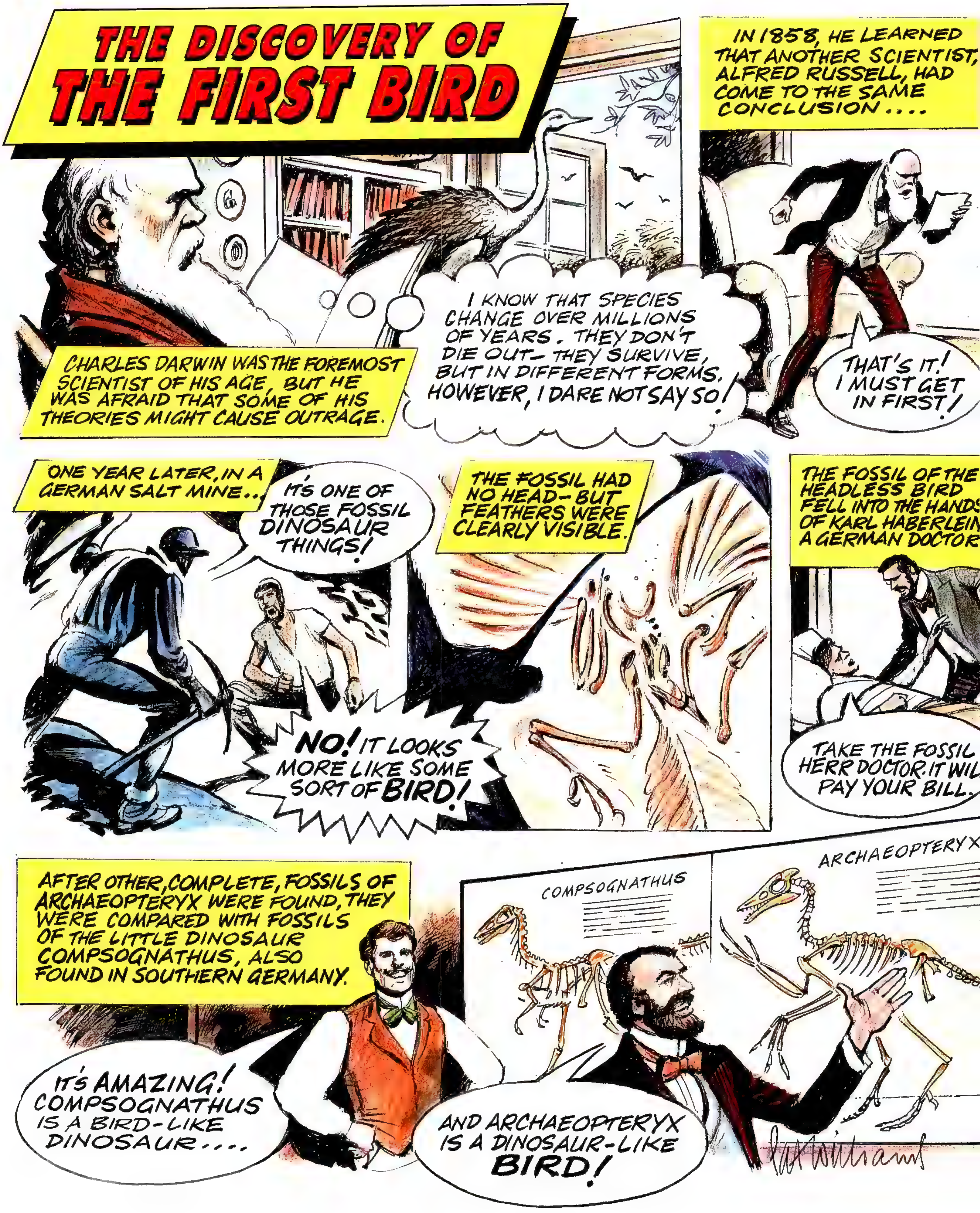
In 1977 George C. Page donated money to build a museum on the site so that the area could be properly excavated. The George C. Page Museum of La Brea Discoveries contains skeletons of all the types of animal found there.

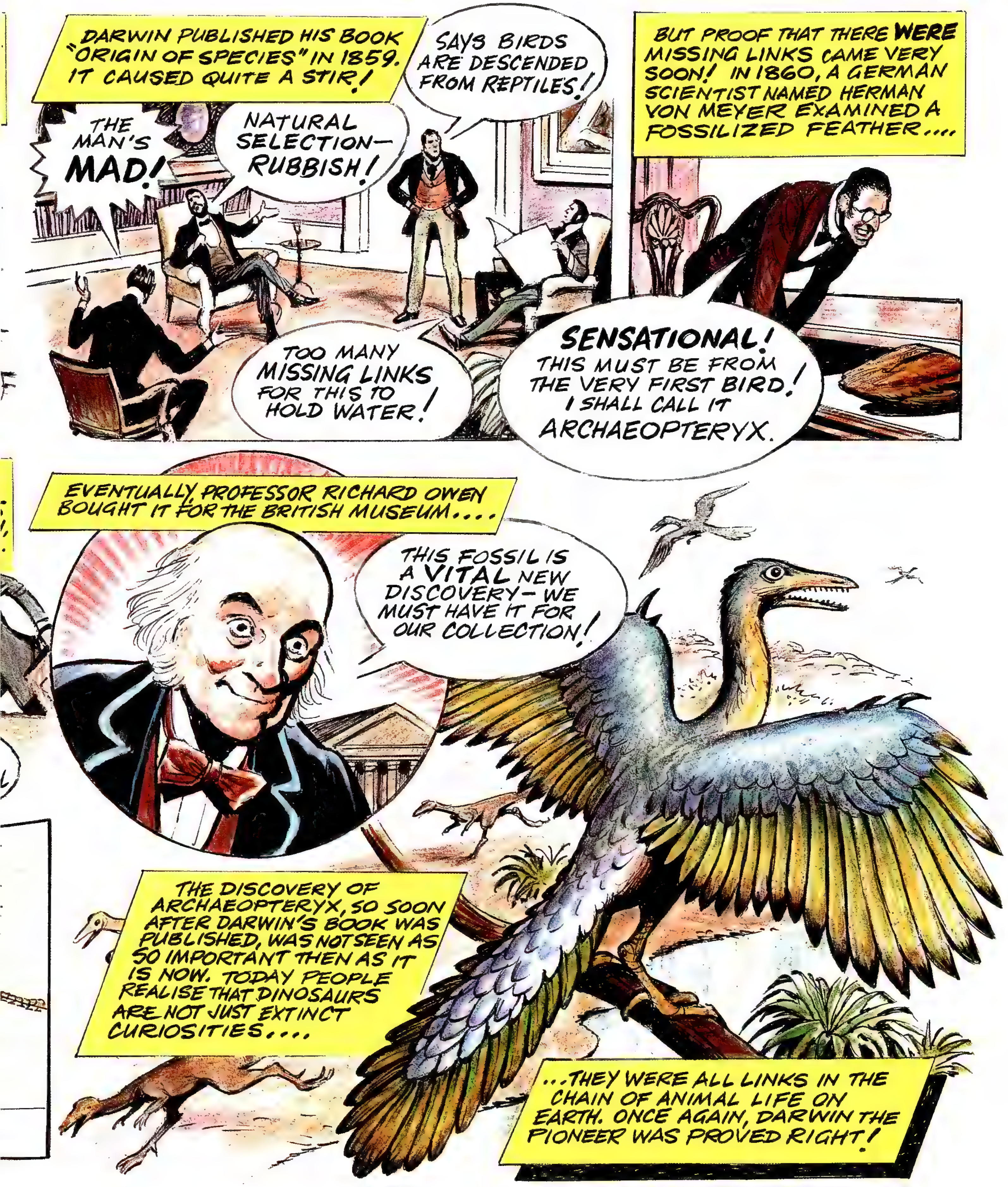
IT'S A FACT

STATE FOSSIL

The great sabre-toothed cat *Smilodon californicus* was found in the Rancho La Brea tar pits. It was so spectacular and became such a popular attraction that it has been adopted as the state fossil of California.

THE DISCOVERY OF THE FIRST BIRD


CHARLES DARWIN WAS THE FOREMOST SCIENTIST OF HIS AGE, BUT HE WAS AFRAID THAT SOME OF HIS THEORIES MIGHT CAUSE OUTRAGE.
I KNOW THAT SPECIES CHANGE OVER MILLIONS OF YEARS. THEY DON'T DIE OUT– THEY SURVIVE, BUT IN DIFFERENT FORMS. HOWEVER, I DARE NOT SAY SO!
IN 1858, HE LEARNED THAT ANOTHER SCIENTIST, ALFRED RUSSELL, HAD COME TO THE SAME CONCLUSION....
THAT'S IT! I MUST GET IN FIRST!
ONE YEAR LATER, IN A GERMAN SALT MINE...
IT'S ONE OF THOSE FOSSIL DINOSAUR THINGS!
NO! IT LOOKS MORE LIKE SOME SORT OF BIRD!
THE FOSSIL HAD NO HEAD– BUT FEATHERS WERE CLEARLY VISIBLE.
THE FOSSIL OF THE HEADLESS BIRD FELL INTO THE HANDS OF KARL HABERLEIN A GERMAN DOCTOR
TAKE THE FOSSIL HERR DOCTOR. IT WIL PAY YOUR BILL.
AFTER OTHER, COMPLETE, FOSSILS OF ARCHAEOPTERYX WERE FOUND, THEY WERE COMPARED WITH FOSSILS OF THE LITTLE DINOSAUR COMPSOGNATHUS, ALSO FOUND IN SOUTHERN GERMANY.
COMPSOGNATHUS
ARCHAEOPTERYX
IT'S AMAZING! COMPSOGNATHUS IS A BIRD-LIKE DINOSAUR....
AND ARCHAEOPTERYX IS A DINOSAUR-LIKE BIRD!


DARWIN PUBLISHED HIS BOOK "ORIGIN OF SPECIES" IN 1859. IT CAUSED QUITE A STIR!
SAYS BIRDS ARE DESCENDED FROM REPTILES!
THE MAN'S MAD!
NATURAL SELECTION— RUBBISH!
TOO MANY MISSING LINKS FOR THIS TO HOLD WATER!
BUT PROOF THAT THERE WERE MISSING LINKS CAME VERY SOON! IN 1860, A GERMAN SCIENTIST NAMED HERMAN VON MEYER EXAMINED A FOSSILIZED FEATHER....
SENSATIONAL! THIS MUST BE FROM THE VERY FIRST BIRD! I SHALL CALL IT ARCHAEOPTERYX.
EVENTUALLY, PROFESSOR RICHARD OWEN BOUGHT IT FOR THE BRITISH MUSEUM....
THIS FOSSIL IS A VITAL NEW DISCOVERY— WE MUST HAVE IT FOR OUR COLLECTION!
THE DISCOVERY OF ARCHAEOPTERYX, SO SOON AFTER DARWIN'S BOOK WAS PUBLISHED, WAS NOT SEEN AS SO IMPORTANT THEN AS IT IS NOW. TODAY PEOPLE REALISE THAT DINOSAURS ARE NOT JUST EXTINCT CURIOSITIES....
...THEY WERE ALL LINKS IN THE CHAIN OF ANIMAL LIFE ON EARTH. ONCE AGAIN, DARWIN THE PIONEER WAS PROVED RIGHT!

Improve and test your knowledge with...

FACT FILE

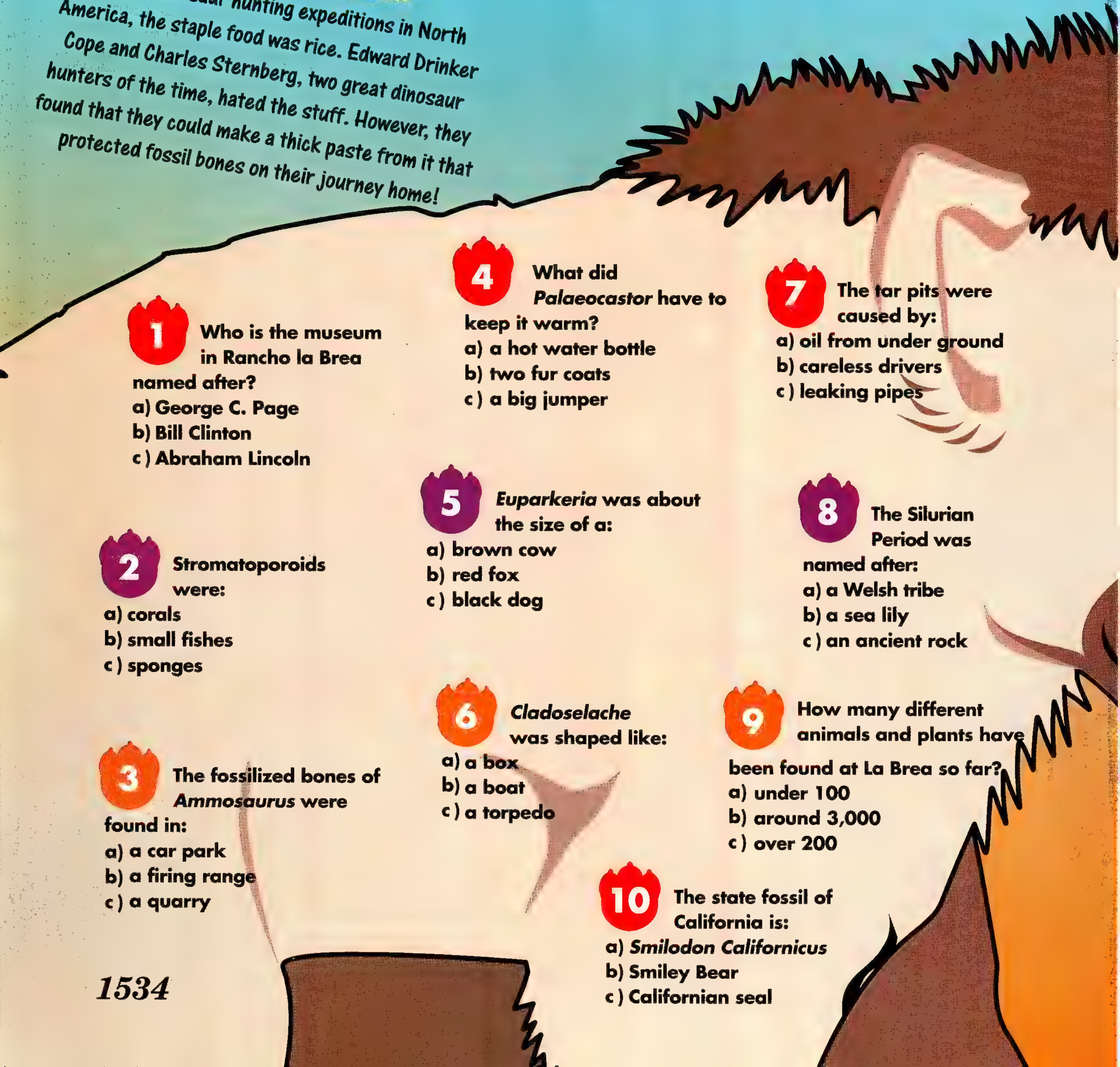
Follow the footprints on the mammoth's back and answer the questions posed

Fossil count

At the last check, there were about 2,100 different dinosaur specimens stored in various museums throughout the world.

Rice and bones for lunch?

On early dinosaur hunting expeditions in North America, the staple food was rice. Edward Drinker Cope and Charles Sternberg, two great dinosaur hunters of the time, hated the stuff. However, they found that they could make a thick paste from it that protected fossil bones on their journey home!



1 Who is the museum in Rancho la Brea named after?
a) George C. Page
b) Bill Clinton
c) Abraham Lincoln

2 Stromatoporoids were:
a) corals
b) small fishes
c) sponges

3 The fossilized bones of *Ammosaurus* were found in:
a) a car park
b) a firing range
c) a quarry

4 What did *Palaeocastor* have to keep it warm?
a) a hot water bottle
b) two fur coats
c) a big jumper

5 *Euparkeria* was about the size of a:
a) brown cow
b) red fox
c) black dog

6 *Cladoselache* was shaped like:
a) a box
b) a boat
c) a torpedo

7 The tar pits were caused by:
a) oil from under ground
b) careless drivers
c) leaking pipes

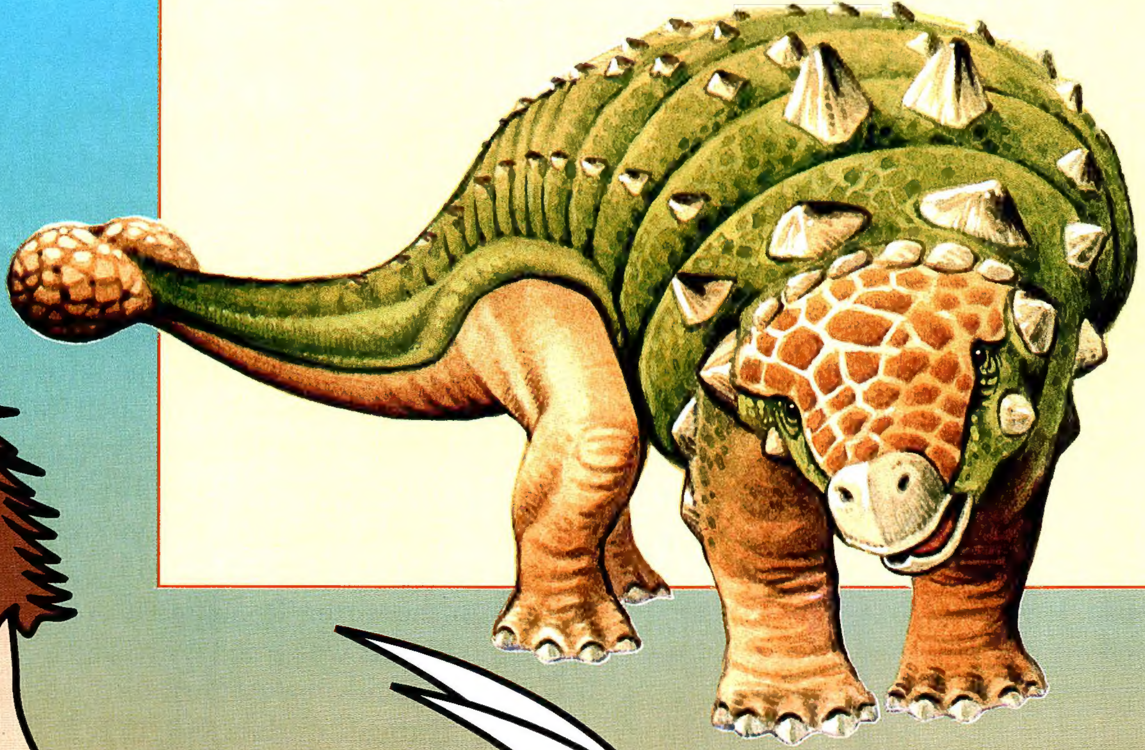
8 The Silurian Period was named after:
a) a Welsh tribe
b) a sea lily
c) an ancient rock

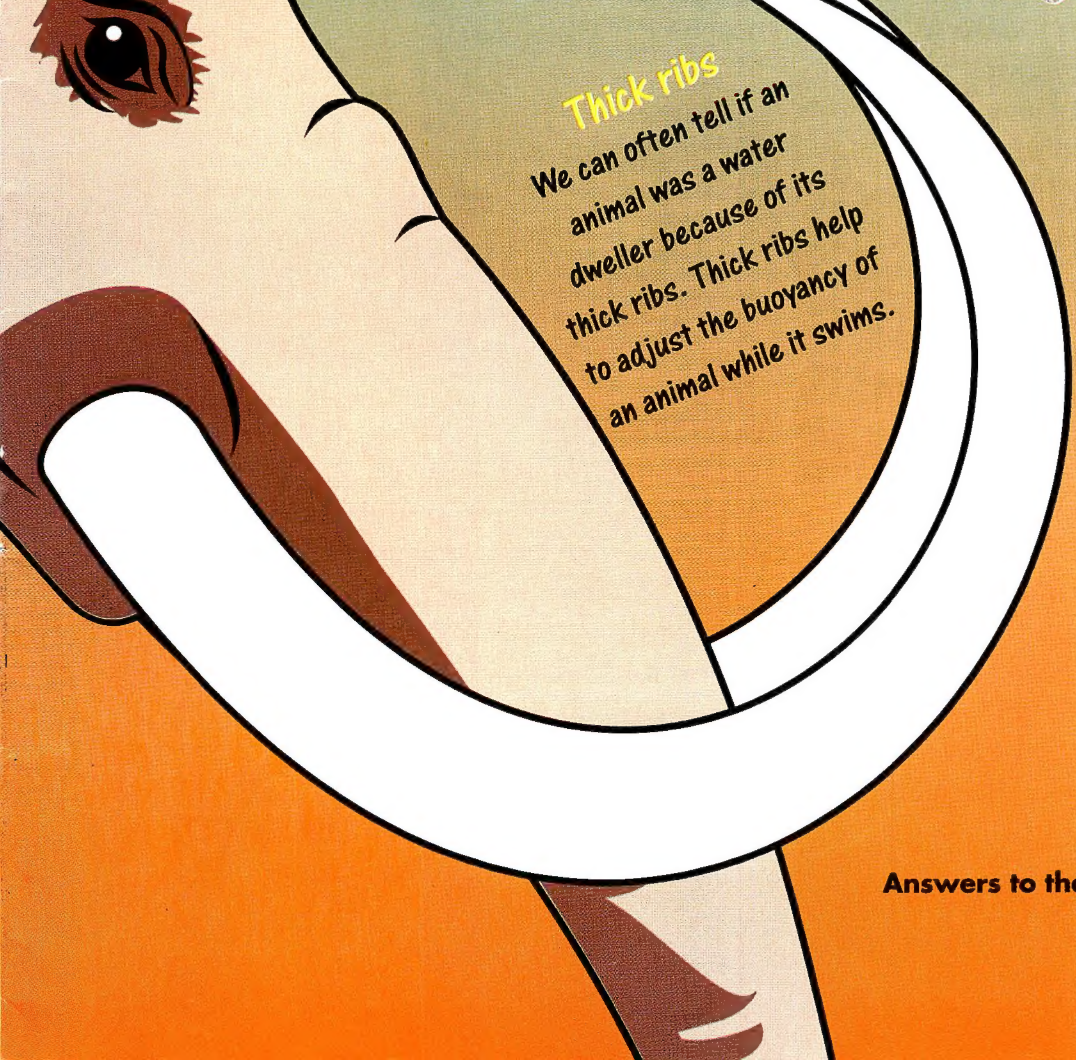
9 How many different animals and plants have been found at La Brea so far?
a) under 100
b) around 3,000
c) over 200

10 The state fossil of California is:
a) *Smilodon Californicus*
b) Smiley Bear
c) Californian seal

Jurassosaurus nedegoapeferkimorum

This dinosaur has a very long name because it has been named after the leading actors in the film 'Jurassic Park'. It is the world's oldest armoured dinosaur and was found in China.





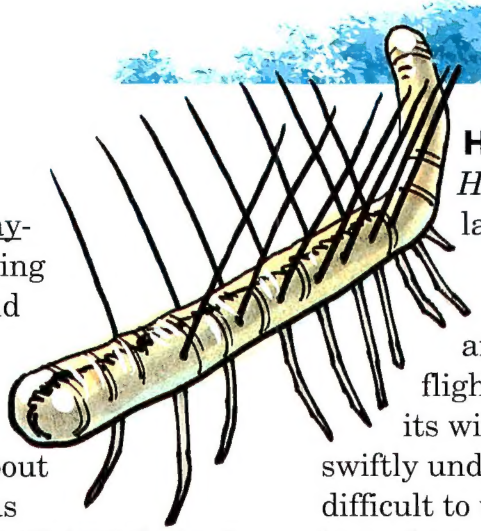
Thick ribs

We can often tell if an animal was a water dweller because of its thick ribs. Thick ribs help to adjust the buoyancy of an animal while it swims.

Five-toed footprints

The first ever five-toed dinosaur footprints to be found in Britain were discovered in late Jurassic rocks in Dorset in 1988. They were probably made by a sauropod.

Answers to the questions on inside back cover



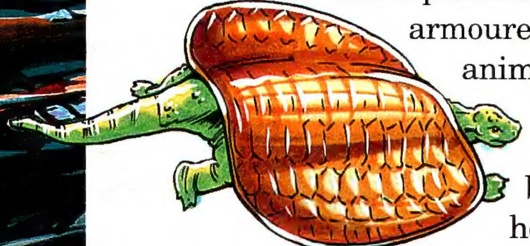
HALLUCIGENIA
600 MYA

Hallucigenia (hal-lucy-gay-nee-a) was a bizarre-looking marine (sea) animal found among the fossils of the Burgess Shale in British Columbia, Canada. Its tube-shaped body was about 3cm long and its back was protected by sharp spikes. Paired fleshy legs supported *Hallucigenia* as it moved along the sea bed. It was such an extraordinary looking creature that scientists gave it a name which means 'unreal'.

HEMICYCLASPIS **390 MYA**

Hemicyclaspis (hem-i-cy-klas-pis) was an armoured, jawless fish about as long as an adult human's hand. It lived in the Late Silurian and Devonian Periods in northern lakes and rivers. *Hemicyclaspis*' head and body were covered by bony plates and it swam with its head down and tail turned up.

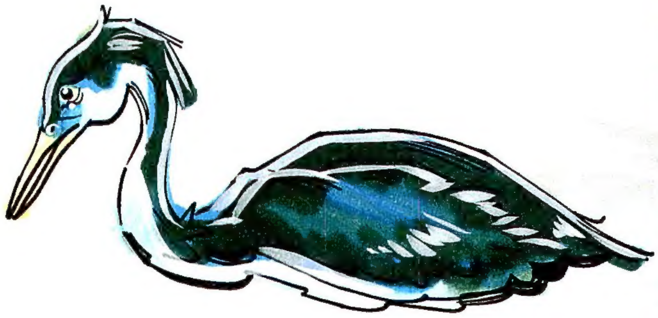
HENODUS **195 MYA**



As wide as a front door, *Henodus* (hen-o-dus) was a placodont – an armoured marine animal. Turtle-shaped, it had a shell to cover its body so only its head, limbs and tail were exposed. *Henodus* lived in the Late Triassic Period in Germany. Its name means 'one tooth'.

HESPERORNIS **80 MYA**

Hesperornis (hes-per-or-nis) was a large, diving bird which could have reached a height of 1.8m – as tall as a man. Its wings were tiny and *Hesperornis* was probably flightless, like today's penguin. But its wings would have helped it to steer swiftly under water. It probably found it difficult to walk on land, shuffling on two large feet which may have been webbed like a duck's, but its feet propelled it swiftly through the water. It snapped up fish with a long beak that was lined with teeth. *Hesperornis* means 'western bird' and it lived in Kansas, in the USA, in the Cretaceous Period.



HOMOEOSAURUS **145 MYA**

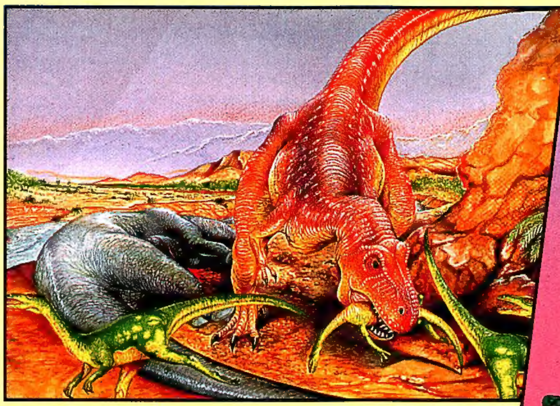
Tiny, lizard-like *Homoeosaurus* (hom-o-ee-o-saw-rus) was a rhynchosaur or 'beaked head' reptile. It was about the length of an adult's hand span and lived in the Late Jurassic Period in south-west Germany. It was a plant-eater and probably scratched up roots from the ground and dug out tender plants with its curved beak.

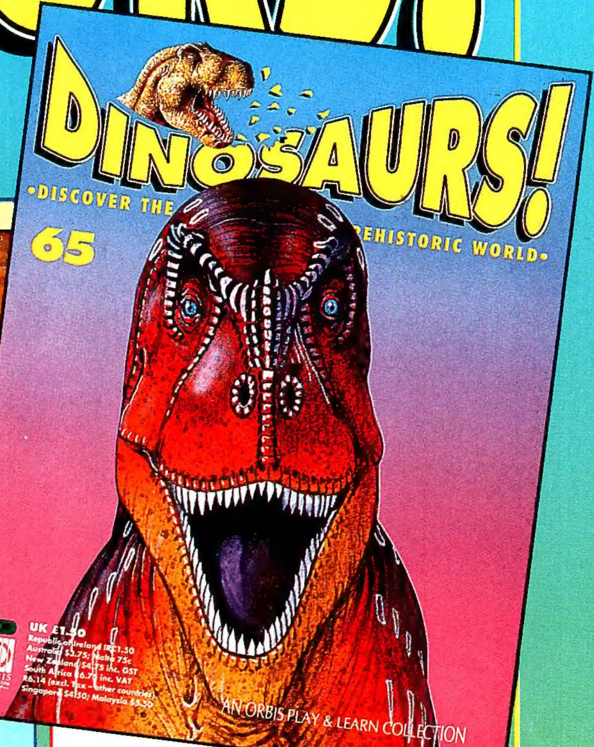
MYA = MILLION YEARS AGO

COMING IN PART 65 OF

DINOSAURS!

Find out about the death of the dinosaurs in TIME DETECTIVE. In SPOTTER'S GUIDE, meet an artist, and see how he paints dinosaurs.

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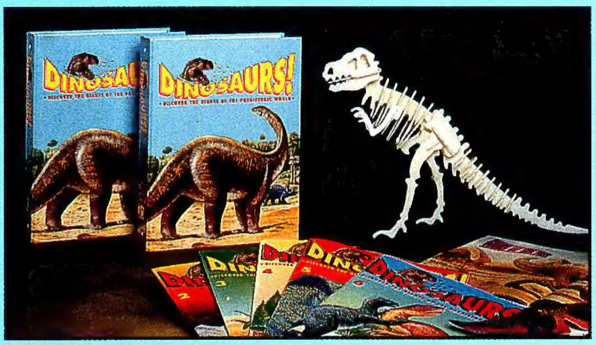

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ANSWERS TO FACT FILE QUESTIONS: 1.a 2.c 3.c 4.b 5.b 6.c 7.a 8.a 9.c 10.a

Dr David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

How old is the oldest monotreme fossil?

The oldest known monotreme (egg-laying mammal) was recognised from teeth and a partial skull which was similar to that of a platypus. These early fossil remains date from the Oligocene of Australia. Before that time, there was no fossil evidence of monotremes, though their history should be traceable back to Jurassic times.

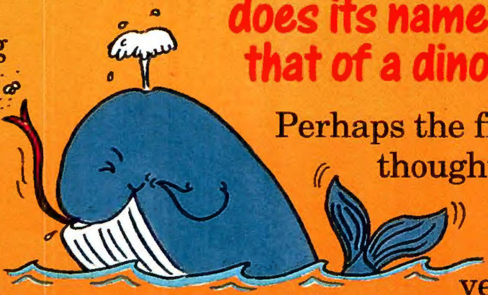
Are there fossil tadpoles?

Yes, there are fossils of immature amphibians. Most, which date back to the Carboniferous Period, are not strictly tadpoles, but are more accurately described as 'larvae'. The name tadpole is used rather exclusively for the young larvae of frogs and toads. However, newts and salamanders produce young that are known as larvae. These have frilly external gills. Some small fossils obtained from shallow ponds and lakes include creatures which have carbonised remains of external gills – these are almost certainly amphibian larvae.

Cretaceous Iguanodon fossils were found in a coal mine dating from the Carboniferous. Why?

The remains of Iguanodons were found in a seam of clay which was from Cretaceous times. The reason they were found in a mine which contained coal, dating from much earlier times, is rather complicated. It seems that the coal formed in layers within limestone rocks. Millions of years later the limestone began to dissolve, creating caverns in the limestone. Millions of years after the dinosaurs had been buried in Cretaceous times, the caverns collapsed and the dinosaurs slipped into these caverns, to be discovered in recent times by coal miners.

Basilosaurus was a whale. So why does its name sound like that of a dinosaur?



Perhaps the first discoverers thought *Basilosaurus* was a giant lizard. It looked very like the huge mosasaurs that were seen at the end of the Cretaceous Period.

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